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FINAL PROPOSAL FOR SUPPORT  
UNDER THE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
INSTITUTIONAL GRANTS PROGRAM (Revised)

Applicant: Massachusetts Institute of Technology  
Date: May 28, 1974  
Grant Title: Nutrition Planning in Low Income Countries  
Amount of Grant: \$685,000  
ID Sponsoring Office: IA/N

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## I. DEFINITION OF PROBLEM

A. The case for investment to combat malnutrition, particularly among children in the critical first years of life, has become increasingly recognized by governments in low income countries, by international assistance agencies and by the academic community. Malnutrition not only continues to be a serious humanitarian concern but is also increasingly appreciated as an area with important implications for the larger economic growth process. Considerable attention is being devoted to the premise that malnutrition-caused mental and physical debilitation may limit the utilization of a country's existing educational capacity and adversely affect productivity. It is also argued that high child mortality rates, in large part a function of malnutrition, provide a disincentive for social security-conscious parents to practice family planning.

Despite recognition by governments of the consequences of such malnutrition, nutrition intervention, to date, has been limited, both in scope and effectiveness. Those few activities which have been undertaken have been either medically oriented with traditional medical personnel and prescription, or they have been more economics-oriented with an aim to modify existing consumption patterns. With a clearer understanding of the magnitude and complexity of the malnutrition problem in these countries, it has become apparent that these traditional approaches in and of themselves are inadequate, and that a broader multidisciplinary approach is necessary. This suggests the need (1) to relate nutrition intervention to the larger processes of economic growth in these countries, requiring an understanding of vital relationships with the dynamics of rural development, of agricultural policy, and of population problems, and (2) to address explicitly the matter of nutrition planning. Traditionally nutrition planning, where it has been considered at all, has consisted solely of limited nutrition surveys after which program decisions are made according to the interests of existing technical and administrative personnel.

B. The Massachusetts Institute of Technology has long been actively concerned with development problems in low income countries. The Center for International Studies has been involved in development activities in numerous countries including India and Chile. The Department of Nutrition and Food Science has done important work in the assessment of nutrition problems and on several technological alternatives. Individuals in the Sloan School of Management and the Departments of Economics, Political Science, Mechanical Engineering and Ocean Engineering similarly have been involved in various facets of development.

More than two years ago the first international conference bringing together the disciplines concerned with nutrition and national planning was held at the Massachusetts Institute of Technology. The discussions at that time and since have served to clarify some of the basic needs which must be addressed in this field, in particular the need to link research and training with planning and implementation

- realities faced in low income countries. Also recognized has been the need for improved nutrition planning techniques and increased practical utilization of sector analysis and intersectoral planning.

The rationale for investment in programs to combat malnutrition and the process of rational resource allocation within the nutrition sector require research and information collection undertaken by individuals with multidisciplinary training. Individuals with such training are also vitally needed to facilitate the implementation of nutrition programs which are integrated into broader strategies of economic growth. The present paucity of talent in low income and industrialized countries to perform such tasks underlines the importance of multidisciplinary university programs of graduate study and training.

Specifically, the conventional nutrition curricula does not include micro-economics, systems analysis, anthropology, political development, financial management, or cost/effectiveness analysis. Similarly, the curricula for development planners contains no human nutrition or food science, and often gives inadequate attention to the interaction of development economics and other social sciences. As a result, individuals trained as nutritionists, food scientists or development planners at the university level rarely have the tools to integrate these disciplines in rational nutrition planning.

Given these needs and the strong background and commitment of M.I.P., the International Nutrition Planning (INP) Program was established in 1972 by the Department of Nutrition and Food Science and the Center for International Studies. Initial financial support was provided by the Rockefeller Foundation. With these funds and project support, the INP Program has been able to initiate a range of activities pooling experience and competence from various parts of the Institute and from other universities.

C. As will be indicated in the sections which follow, the Program's objectives overlap considerably with AID's interest in a response capability. (1) The INP Program recognizes the importance of developing a cadre of professional persons from both low income and industrialized countries to supply this response capability. These persons would be provided with multidisciplinary but well-grounded training, and would bring with them relevant field experience. (2) The Program similarly is committed to improving the quality of the response capability by fostering a better understanding of the dynamics of malnutrition and the relative effectiveness of alternative delivery systems. Research addressing these questions will improve local and international efforts to address malnutrition problems. (3) Finally, and most directly, the INP Program is concerned with the provision of advisory services to governments and international assistance agencies, and to the development of linkages with other universities and agencies involved in this field.

The basic challenge facing the INP Program is to maintain a sensible balance among these three sets of responsibilities and to bring about meaningful interaction and mutual reinforcement among them.

The INP Program also reflects the interests of the Massachusetts Institute of Technology in bringing to bear on major national and international problems the expertise and experience of its faculty and staff and in providing for its students the fullest range of formal course work and research experience in these areas. Thus the Institute has a vital interest in developing the course structure needed to prepare students in the nutrition planning area, in making this a possible area of concentration for students, faculty, and staff, and in developing the capabilities for disseminating our knowledge and understanding of these issues to those with responsibility for planning and implementing policies. Furthermore, the Institute has a special interest in encouraging collaboration among its social and natural scientists in fields such as this.

## II. DESCRIPTION OF GRANTEE

A. Recognizing the need for a broader perspective and for a wider range of disciplines in addressing problems of malnutrition in low income countries, M.I.T. established in 1972 the International Nutrition Planning Program affiliated with the Department of Nutrition and Food Science and with the Center for International Studies. The former provides scientific and technological support, while the latter has competence in dealing with the economic, political and management problems. Individuals involved in operations of the program are drawn from these entities plus the Sloan School of Management, the Center for Advanced Engineering Study, and the Departments of Economics, Political Science, Urban Studies, Mechanical Engineering and Ocean Engineering.

The capabilities and experience of M.I.T. in nutrition and food science and in the social sciences are well known. There also exists at the Institute a large number of existing courses and research activities which relate to interests of the new Program. A partial list, reflecting the range of related activities, is included as Appendix I.

B. Organizationally, the INP Program is affiliated with the Department of Nutrition and Food Science, Dr. Nevin S. Scrimshaw, Head, and the Center for International Studies, Dr. Eugene B. Skolnikoff, Director. Drs. Scrimshaw and Skolnikoff also serve as co-chairmen of a Program Advisory Committee made up of individuals from different parts of the Institute which meets regularly to review Program activities and direction. The Program Director is Dr. F. James Levinson.

There presently exists at M.I.T. a large body of important expertise and activity, reflected by the following list of persons, in the field of nutrition and in other disciplines which bear on the solution of malnutrition problems. The INP Program has been providing an effective means of inter-relating and focusing the talents and experience of individuals through the highly applied, problem-oriented activities described in this proposal.

The following is a list of those already directly involved in the INP Program:

### Personnel and Associated M.I.T. Faculty

#### Advisory Board

Nevin S. Scrimshaw, Head, Department of Nutrition and Food Science, and Professor of Human Nutrition

Eugene B. Skolnikoff, Director, Center for International Studies, and Professor of Political Science

Stephen R. Tannenbaum, Professor of Food Science, Department  
of Nutrition and Food Science

Myron Weiner, Professor of Political Science

Director

F. James Levinson

In addition, the Program has attracted the interest of a large number of faculty, students, and staff in the Departments of Nutrition and Food Science, Political Science, Economics, Urban Studies, and Planning, Mechanical Engineering, Ocean Engineering, Management, and Anthropology as well as the Center for International Studies and the Center for Advanced Engineering Studies. We anticipate that individuals from these Departments and Centers will be involved in all aspects of the work performed under this grant.

C. The Institute's commitment to developing its capabilities in international nutrition planning have been spelled out in the preceding paragraphs. In connection with the activities being funded under this grant, M.I.T. has agreed to make available:

1. Administrative services, including time of its senior officers;
2. Laboratories, including laboratory equipment, field research facilities, and libraries;
3. Office, classroom, and auditorium space for faculty, students, and special symposia related to the program.

Three basic tenets of the proposal should be made explicit at the outset:

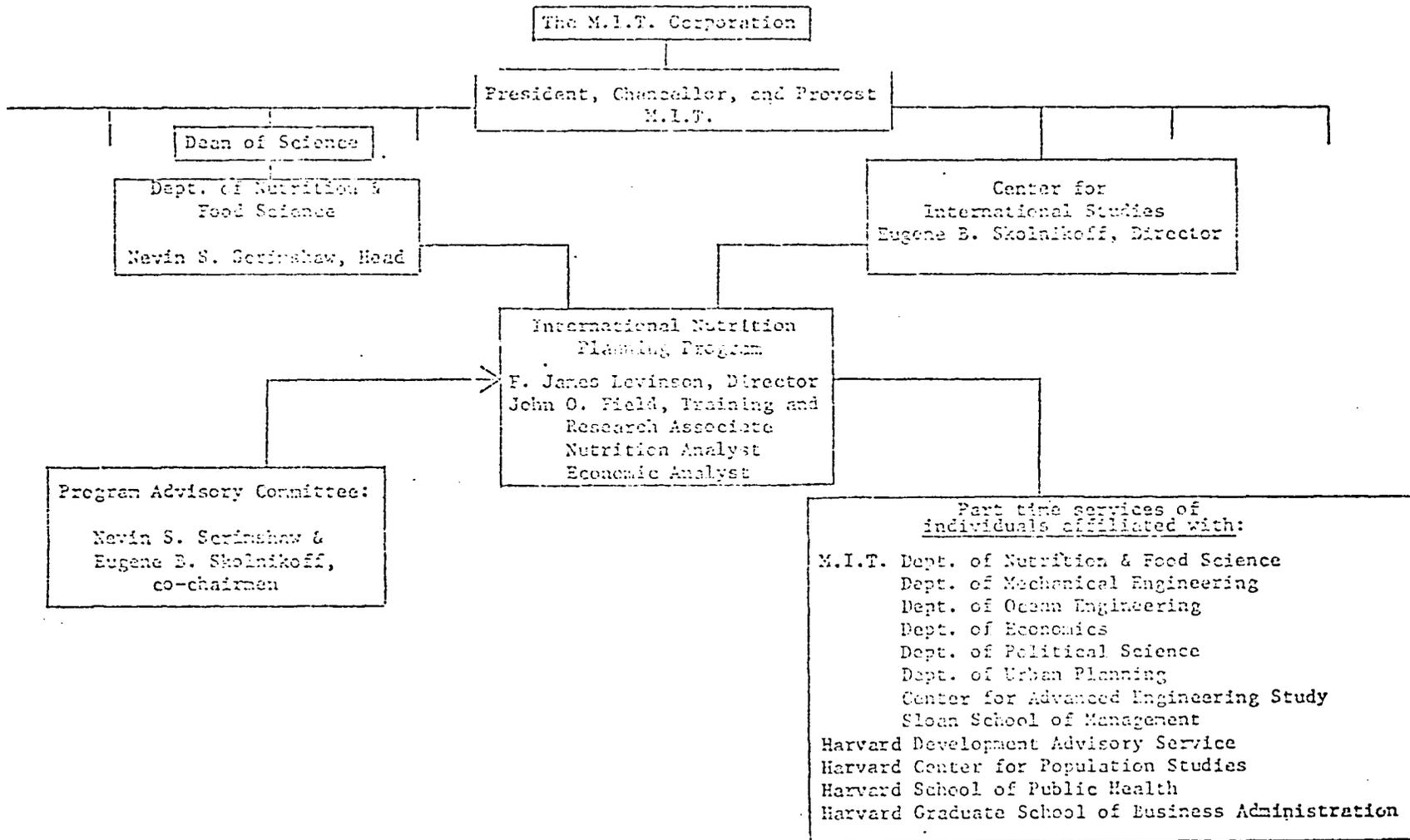
1. The INP Program is an ongoing operation and will be continued with or without AID 211(d) support.
2. The provision of 211 (d) support will permit an increase in INP activities and provide an increased response and initiation capacity.
3. The INP Program expects to be able to continue this increased level of activity once AID support is withdrawn through other funding sources and a higher proportion of self-financing activities.

D. Policy, Professional and Administrative Organization for Grant-Financed Activity

The INP Program is responsible to a Program Advisory Committee made up of individuals from different parts of the Institute which meets regularly to review Program activities and direction. Co-chairmen of the Committee are Kevin S. Scrimshaw, Head, Department of Nutrition and Food Science, and Professor of Human Nutrition; and Eugene B. Skolnikoff, Director, Center for International Studies and Professor of Political Science.

The grant will be administered under the Office of the M.I.T. provost, which may in turn delegate specific areas of day-to-day administrative responsibility to the Center for International Studies and to the Department of Nutrition and Food Science, the co-sponsors of the INP Program. All expenditures under the grant must be approved by the Center or department, as appropriate, and processed through the Institute's normal review and approval channels. Research appointments and academic appointments using grant funds must be approved by the Director of the Center or the Head of the Department and by the normal Institute procedures involving the relevant Deans and the Provost. A diagram indicating the INP program organization is provided on the following page

PROJECT ORGANIZATION CHART



### III. PURPOSE, OBJECTIVES AND ACTIVITIES

#### A. Purpose of Grant

This grant will permit M.I.T. to develop a long-term institutional response capability for multisectoral nutrition planning in low income countries at national and regional levels.

#### B. Major Objectives, Scope and Critical Assumptions

The four major objectives of the International Nutrition Planning Program under the grant are described below. Together they will, in our view, accomplish the grant purpose. While each objective is discussed separately below, they are closely interrelated; each is reinforced by, and depends on inputs from the others for successful attainment of the project goal.

1. Development of an adaptive research capacity and data base to determine and refine effective approaches of national and regional planning, implementation and evaluation of programs to combat problems of malnutrition among target populations in low income countries. While there has been considerable discussion of the importance of integrated nutrition planning, the actual means of effectively approaching the matter of planning and of determining appropriate strategies of dealing with malnutrition problems are far from clear. Thus, in order for an institution effectively to disseminate information on the subject, and to be of useful assistance to governments and agencies in matters relating to nutrition planning, it is necessary to fill these knowledge gaps with appropriate, well-focused research.

During its first two years, the INP Program devoted considerable attention to the identification of nutrition research priorities. In addition to these deliberations, the Program participated actively in the Meeting on Nutrition Policy and Programming Research organized and sponsored by the World Bank and the Agricultural Development Council. That meeting identified a series of policy-oriented nutrition research priorities which are highly consistent with those of the INP Program.

The research needs presently accorded highest priority by the INP Program are:

- (1) Studies to increase understanding of the causality and dynamics of malnutrition among vulnerable population groups for the purpose of identifying appropriate intervention points.
- (2) Studies to determine the relative value of alternative nutrition program approaches or delivery systems utilizing cost-effectiveness analysis.

The INP Program has been addressing the former through a "multidisciplinary research group" of 10 faculty members and students representing the fields of economics, political science, nutrition, medicine, anthropology, psychology, agri-business and administration. The group has been meeting for the past year to develop a general

model of malnutrition causality. This model will then serve as the basis for a detailed field application in a low income country.

The Program has been addressing the second need through a joint project with Harvard University under contract with USDA (AID supported) on the assessment of alternative interventions. During the summer of 1973, the M.I.T.-Harvard team (active M.I.T. personnel included Richard Eckaus and Philip Abbott of the Economics Department, and the INP Program Director) designed a methodology for the evaluation of alternative approaches including an adaptive cost-effectiveness design. Subsequently the group, with active inputs from graduate students, has been collecting and organizing existing information on the costs, effectiveness, coverage and conditions of nutrition programs in each of several categories which have been undertaken in the past.

Other priority research needs of major interest to the INP Program include:

- 1) Practical means of determining and monitoring the nutritional status of populations.
- 2) Empirical determination of nutrition program benefits.
- 3) Determination of the effects of income and price changes on the nutritional intake of vulnerable populations.
- 4) Determination of operational relationships among nutrition, population, maternal-child health and sanitation.
- 5) Study of food policies of food exporting nations as these relate to international food needs.

The INP Program plans to review these priorities periodically, in consultation with AID, and assess the Program's comparative advantage in dealing with the priorities identified. Funds available under this AID Section 211(d) grant will be expended on research problems that the INP Program and AID mutually agree are of priority importance.

a.) Multidisciplinary planning studies. One means of approaching several of these research needs relates to a major INP Program responsibility, namely the conduct of detailed multidisciplinary planning efforts carried out in concert with local planning personnel. In collaboration with AID and other international assistance agencies, the INP Program has been involved in nutrition planning activities in several countries, among them Indonesia and El Salvador. The Program envisages longer term involvement in a systematic, phased program of nutrition planning in Pakistan. These inputs financed by AID contract would be designed to facilitate activities of the Nutrition Syndicate located in the Pakistan Planning Commission. Assistance also will be provided to two social science research entities and to the National Health Laboratories for analysis directly related to planning needs.

This type of country research would permit both the accumulation of knowledge and the development of procedures thereby facilitating future planning and serving as a base for useful training. Specifically,

such studies would proceed along the following lines, adjusted to the context of the nation under study.

1. Assess the nature and magnitude of the existing malnutrition problem, particularly that of young children among whom the consequences and implications of malnutrition are most critical. This assessment would make use of existing data where available and considered reasonably accurate but utilize new means of analysis. Where necessary, existing data would be supplemented by the additional collection of information on nutritional status or nutritional intake by local institutions.

2. Carry out analysis aimed at identifying the relative importance and interactions of the determinants of the malnutrition found. How important are such factors as income, commodity prices, systemic and enteric infection, belief patterns and the nutritional content of foods as determinants of malnutrition?

3. Seek to determine effective technological or economic means of affecting the determinants found most important in the earlier step. If belief patterns are most limiting, what approaches are best suited to modify these patterns in the context of the situation under consideration? If the nutritional content of the foods consumed is inadequate what are the technological alternatives best able to improve it? What are the projected costs, benefits and implications of the nutritive improvement of cereal strains through genetic plant breeding, and of food supplementation utilizing synthetic amino acids or such protein sources as oilseeds, pulses, fish or unicellular organisms? If parasitic infection is the critical limiting factor, what means are available to affect the problem?

While Step 1 would utilize expertise in the Department of Nutrition and Food Science, the following two steps would utilize human resource economics and engineering talents plus specific inputs from specialists in communications, anthropology, demography, and ocean resources depending upon the problem identified. Inputs from development economics and political science will be utilized at all stages to assure integration of these steps into the broader planning process.

Overall, such studies should result in a highly specific set of interventions designed to deal with the malnutrition problem while being fully cognizant of such governmental concerns as financial and foreign exchange constraints, visibility, and the high opportunity cost of skilled administrative resources. Finally, the nutrition interventions selected should be ones which complement and are fully consistent with the country's overall development strategy and other priority sectors.

While the primary thrust of the research is oriented toward planning, the Program recognizes that planning, if it is to be effective,

does not terminate with the initiation of a project but must continue through the implementation process which involves continued decision making, goal revision, and the ability to take advantage of new targets of opportunity. Similarly the evaluation mechanism clearly is an indispensable tool in a broadly conceived planning process. Beyond these, involvement in actual delivery systems will be necessary to generate data required for the third level of investigation discussed above.

Research will be conducted by graduate students as Ph.D. dissertations and also by teams comprised of members of the core INP staff and specialists from various M.I.T. departments and collaborative universities. In some cases the two can be related and complementary.

While outside funding will cover most of the costs of the research described above, AID Section 211(d) funds will be utilized for those purposes when the overall objectives of the grant will be thereby furthered.

b.) Development of a data base and generalized body of information. Through such studies, M.I.T. would hope to develop a considerable body of information and expertise, some of which could be generalized to larger geographic areas. After several such studies have been carried out, both the procedures developed and the data generated should considerably facilitate and expedite similar studies elsewhere. All of this requires continued support for country research of the nature described above.

In addition to its own research, M.I.T. intends to make a systematic effort to collect relevant information on related pursuits in other parts of the world, and to utilize their results as well in determining effective approaches. This information collection system would be a built-in corollary of all research activities and in the future might serve as a basis for a dissemination system for domestic and international use. Initially, however, this data base and generalized body of information would be used by M.I.T. for training and research purposes.

In this connection, the INP Program has been laying groundwork for an International Malnutrition Map. Such a map, comparable to agricultural and population yearbooks, would provide country-specific data on malnutrition and its correlates as well as program information. The information is being organized on a country-by-country basis as well as on a subject-matter basis, the latter permitting spectra of such variables as nutritional status, morbidity, breast feeding practices, income distribution and nutrition program expenditures, indicating the relative position of each country. Although the comparative advantage of a university probably does not lie in the production and periodic up-dating of such a document (the U.N. Protein Advisory Group might be a logical choice), M.I.T. can be helpful in its organization and in technical backstopping.

c.) Publications. Unfortunately, there has been no means of systematically making available to concerned persons information on alternative approaches to nutrition planning and programming and on actual nutrition intervention programs which have been attempted.

Recognizing this need, the M.I.T. International Nutrition Planning Program and the Cornell University Program in International Nutrition and Development Policy are jointly initiating the Cornell-M.I.T. International Nutrition Policy Series, a case studies monograph series in international nutrition. This continuing series will focus on two main categories of monographs: 1) national or regional planning studies, utilizing tools of the natural and social sciences to identify and refine appropriate nutrition policy instruments; and 2) reports and reviews of specific nutrition intervention programs, providing accounts of actual projects, information on projected costs and effectiveness, and evaluation of the impact and significance of such programs. Such a series will permit the broad distribution of information on nutrition planning efforts and on actual intervention programs. Volume 1 of the Cornell-M.I.T. International Nutrition Policy Series is entitled, "Morinda: An Economic Analysis of Malnutrition Among Young Children in Rural India," by F. James Levinson.

This series would compile in single volumes the state of the art, experience to date, and lessons to be learned, for example, on applied nutrition programs, under-five-clinics, or plant breeding programs. Among studies being considered for upcoming volumes are: (1) an historical analysis of the Chile nutrition program; (2) the Candelaria study; (3) the ITC story; (4) the M.I.T. Guatemala finca study; (4) alternative approaches to vitamin A deficiency in the Philippines; and (5) a review of nutrition and worker productivity.

It is anticipated that two monographs would be published each year. Funds from the AID 211(d) grants would be used in part to finance the preparation of these studies. It is further assumed that the Agency will assist in the dissemination of monographs through the Office of Nutrition and the field missions.

In addition, M.I.T. publishes a Technical Report Series pertaining primarily to its own field research. The first of these was a study of high protein product development efforts in Thailand based on an AID-financed study undertaken in 1973. The second will relate to program development in Indonesia.

The above outputs make several important assumptions:

- 1) Continued cooperation of related M.I.T. departments.
- 2) AID cooperation in locating appropriate field sites and provision of additional funding if warranted.
- 3) Continued financial support for INP research, including for example, AID/USDA support for the nutrition evaluation project.
- 4) Continued collaboration with Cornell on the case studies monograph series.
- 5) Continued involvement and interest of M.I.T. graduate students, other U.S. academic institutions and other donors.

2. Development of educational and training capacities and options on nutrition planning approaches to academic students, to concerned persons and institutions in low income countries, and to others involved in facets of the problem.

Success in program planning and implementation will depend in part on the existence of personnel with training and experience relevant to malnutrition problem solving in low income areas. In addition to the development of such a trained cadre of professionals, there is a need to provide planners with an understanding of malnutrition and the dynamics of nutrition intervention, and to acquaint nutrition and health personnel with planning tools and with the relationships of nutrition to the broader process of economic growth. Given these needs in international nutrition, IINP is offering the following programs of graduate study and training.

a.) Graduate Study. The graduate study program is designed to help produce a cadre of well-trained professionals with skills appropriate for nutrition planning undertakings. Several options are available in this regard and have been carefully considered by the Institute. The first is a graduate program which provides strict disciplinary training in those areas which bear on nutrition planning. The second is one which avoids traditional disciplinary training, and attempts instead to provide the student with exposure to a range of academic disciplines and tools needed in this field. IINP has opted for a third, namely disciplinary training to provide solid grounding in a particular field (e.g., nutritional science, economics or political science) coupled with a broad exposure to subject matter in other relevant disciplines and a common middle ground of nutrition planning talents and experience. The selection of this approach is based on the belief that individuals thus prepared will be able to contribute, in the context of a multidisciplinary unit or team, most effectively, given the highly complex nature of the problem.

Two examples of such graduate study programs may serve to illustrate the approach. A Ph.D. candidate in the Department of Nutrition and Food Science, specializing in international nutrition planning, would take basic course work in nutritional biochemistry and metabolism and would be expected to pass general examinations in that field. In addition, however, he would do course work in development economics (and the necessary background work in micro-economic theory), region-oriented political development (again with a necessary background in political theory), nutrition anthropology, and public health. A Ph.D. candidate in the Department of Political Science would fulfill the basic requirements of that department, and in addition do course work in human nutrition and internationally-oriented food technology, as well as in the above areas of economics, anthropology, and public health. Both students would do explicit course work in nutrition planning and would participate in weekly seminars of the IINP graduate research group. Both would then write a dissertation of a multidisciplinary nature relating to this subject matter.

Between six and ten graduate students are expected to be affiliated with the program by 1975 and between twelve and twenty by 1979. MIT has had a record over the years of attracting foreign students, a large proportion of which come from low income countries. The INP Program expects to follow in this tradition and anticipates that between a quarter and a third of its graduate students at any time would come from these countries.

The AID 211(d) grant would permit full execution of this program through course development, the preparation of case materials, and broadly increased program development capacity. It also would increase the involvement of faculty from MIT departments through their participation in INP projects, their advisory roles with students doing research in this area, their participation in existing or new course offerings.

In this regard there have been several promising developments which indicate the potential for such participation and involvement. One is the development of new INP-related courses to be offered in 1974-75, among them nutrition anthropology (Humanities Department), nutrition-related economics (Economics Department), area-specific nutrition planning (Nutrition Department) and field research methods in nutrition (Nutrition Department). Another encouraging development is the negotiation of a joint appointment for Professor Lance Taylor, presently on the faculty of the Department of Economics at Harvard. If successfully concluded, Professor Taylor would hold a joint tenured appointment in the Departments of Economics and Nutrition. A third promising development is the present involvement of MIT faculty in INP Program research, overseas missions and seminars.

An important dimension of the graduate program and of the other training and research activities is interaction and exchange with other academic institutions and with international assistance agencies. Already some steps have been taken in this direction. One MIT faculty member affiliated with the Program is spending this year at INCAP as a visiting staff member. During 1974-75, visiting staff of the INP Program will include Ashok Mitra, referred to earlier (on a joint arrangement with the Center for Population Studies at Harvard) and Peter Behr, Assistant Representative of the Ford Foundation in Chile. With 211(d) support, the program would expect to have one or two such visiting staff members a year who will teach courses, advise graduate students and participate in other INP Program activities.

b.) Advanced Study Program. The INP Program in collaboration with the MIT Center for Advanced Engineering Study expects to initiate in September 1974 a special nine month Advanced Study Program for Fellows in International Nutrition Planning. The Advanced Study Program is designed primarily for officials of governments and international agencies who are involved in or are likely to become involved in the planning, implementation, or evaluation of programs designed to combat malnutrition in low income countries. It is intended to provide orientation in multisectoral nutrition planning and an understanding of the dynamics and tools of nutrition intervention.

A small number of persons will be accepted each year as Fellows for this non-degree program. Each person accepted will undertake a special program of course work, seminars, and in some cases field work, developed in a way which most sensibly supplements existing talents and experience, whether in public health, finance and economics, or administration. Among potentially relevant subjects are development economics, human nutrition, quantitative methods and data analysis, health services administration, and region-oriented political development.

The Advanced Study Program was designed with two specific objectives in mind. One is to broaden the perspective of government and agency officials working in this field. The second objective is to enable individuals who can afford to take a one year leave of absence from their jobs to acquire operational skills. Aside from its longer term value, the Advanced Study Program (and the workshops discussed below) will help prepare personnel for more immediate planning and problem development tasks without waiting for a "new generation" of university trained planners.

Given the tailor-made nature of the Advanced Study Program and the need for effective interaction between Fellows and the MIT staff, only a small number of Fellows will be admitted each year. The Program is limited to individuals able to meet certain entrance requirements, including fluency in English, and who are sponsored by their respective organizations or governments and can demonstrate that they have adequate financial support. The primary requisites for admission to the Program are several years of professional experience, a record of past professional accomplishment, evidence of serious intent, intellectual maturity, and the educational background needed for participation in regular M.I.T. subjects.

Funds under the Section 211(d) grant will be used to design and develop the Advanced Study Program and to provide over-all direction. The costs of Fellows in the Program will be borne by the individual Fellows or their sponsoring agencies or governments.

Eventually, it is anticipated that the program will be able to handle between ten and fifteen individuals per year.

c.) Short-term Workshops. While the graduate degree programs and the Advanced Study Program are aimed at the development (and re-orientation) of nutrition planning professionals, there is a concomitant need for shorter term efforts aimed at officials with more specific needs. During this development period the Program will seek to determine the most effective means of operating such programs through systematic exploration of alternative approaches. It is hoped that each program will focus specifically on a particular geographic or subject matter area addressing the needs of a particular group of program planners.

In an area-specific training program on nutrition intervention, for example, staff and trainees together would examine the extent and implications of malnutrition in that area, its relationship to the larger development process, the determinants of malnutrition, and the techniques of determining optimum strategies. Regional specialists on rural development, demography, anthropology and food technology then would be called upon to help identify the relationships of these subject matter areas to malnutrition in the country or region being addressed. Finally, to the extent possible, individuals in the program will be involved directly, for as long as one month, in M.I.T.'s operational field functions. These field experiences in turn will be utilized as case studies for use in future training.

There are numerous ways in which such training programs can be carried out and it is important to determine such matters as optimum size, the appropriate location or combination of locations, the most effective combination of training inputs, and the means of utilizing new technological means of adapting or packaging particular training programs for specific groups. Probably the best means of making such determinations is to try them in the context of actual training programs.

During 1974 M.I.T. has been carrying out a series of such workshops under an AID contract for personnel from AID and voluntary agencies and for middle level planners from low income countries. Again the 211(d) grant boosts the INP capacity to carry out effective workshops through development of an increased information base and a larger cadre of trained and experienced personnel. It is expected that the workshops per se, however, would continue to be financed by AID and other concerned agencies or governments. Accordingly, it is assumed that AID will continue its involvement in the workshop program and continue to advise the INP Program of its ongoing assessment of need and demand. M.I.T. anticipates carrying out at least one such workshop per year and also participating in similar workshops organized by governments or international agencies overseas.

3. Development of a capacity to provide certain kinds of advisory services to governments and to multilateral and bilateral assistance agencies on specific aspects of nutrition planning and programming. It has become evident that while recognition of the implications of malnutrition is increasing among governments of low income countries and among international agencies, these entities sometimes lack the personnel to translate this concern into effective programs. The new Program at MIT could provide to these governments and agencies a pool of skilled persons capable of providing competent operational advice geared to the solution of malnutrition problems. Such advisory services would be available in the broad area of nutrition planning discussed separately above. It also would be provided to aid in the solution of such specific elements of a nutrition strategy as (1) particular deficiencies among population sub-groups; (2) the design or evaluation of supplemental feeding, food fortification, plant breeding, or information dissemination programs; (3) utilization of nutrition inputs as a means of strengthening health, family planning or educational institutions; and (4) the nutrition implications of an agricultural price policy or production-incentive program.

A significant amount of advisory service has already been provided by the INP Program. These advisory services were undertaken by MIT faculty and staff supplemented by individuals from other institutions (Harvard, The University of Massachusetts, Penn State, INCAP and the Rockefeller Foundation). Efforts also have been made to involve MIT students in these valuable field experiences. Agencies involved in the program's advisory services have included AID, UNICEF, WHO and the Ford Foundation.

The 211(d) grant will increase MIT's capacity to provide such services by broadening the base of the INP Program and increasing the number of full and part time personnel and students capable of contributing in this fashion. At the same time the INP research and planning activities permitted by the grant will increase understanding of alternative delivery systems, and accordingly improve the quality of advisory services.

Provision of high quality advisory services depends on the following:

- 1) Continued and increased MIT faculty interest and participation
- 2) Continued demand for such advisory services from governments and international assistance agencies
- 3) Accelerated INP graduate study and research activity
- 4) Increased collaboration with similar institutions in the U.S. and abroad.

The INP Program staff will endeavor to be responsive to requests for advisory services from AID, the World Bank, and other similar institutions, to the extent that it can respond to these requests within the overall purposes, objectives, priorities, and resources of the Grant. Generally the provision of such requested advisory services will be funded by the requesting agency or government; there may be minor instances in which the INP Program and AID mutually agree that modest amounts of funding from the Section 211(d) grant should be utilized for such purposes.

4. Establishment of a network of linkages with the U.S. and other institutions dealing with the nutrition problems of low income countries. The establishment of an effective network of linkages is considered essential for the achievement of the program purpose and accordingly is regarded as a basic objective of the program. MIT recognizes the important work being done in the field of international nutrition by other institutions and appreciates the need, during this critical period of disciplinary structuring and definition, to assure complete interaction with these institutions. Such linkages will facilitate the graduate and training programs by faculty and student exchange, and by sharing and/or jointly developing materials. The linkages will aid research undertakings by reducing unnecessary overlap, sharing data sources, and in some cases, cooperating on joint research ventures. Such collaboration and communication among institutions can also help to achieve most rapidly and efficiently the body of basic information and data that will permit accelerated research in this field. Such cooperation also can improve the quality of advisory services through integrated advisory teams.

Accordingly MIT will continue its efforts to establish and strengthen such linkages with a number of U.S. and overseas institutions, and also with donors and voluntary agencies. Among the U.S. institutions with whom linkages might be particularly valuable are the following:

Harvard University -- Given its physical proximity and closely related interests, collaboration with Harvard is particularly valuable. Efforts already are underway to provide complementary courses relating to international nutrition for graduate students. Two joint research activities have been undertaken, one on nutrition evaluation, the other on U.S. food policies. In addition, individuals from the Harvard Business School, the School of Public Health, the Development Advisory Services and the Center for Population Studies have been involved in INP overseas projects and workshops. There is active interest at both universities in continuing and expanding such linkages which clearly support each of the three preceding program objectives.

Cornell University -- As noted earlier, MIT and Cornell co-sponsor the International Nutrition Policy Series, a publication series of monographs on programs and planning efforts. There also has been close interaction on research undertakings. Cornell students and faculty engaged in field research have made periodic visits to MIT for seminars and this has been reciprocated. Finally a mechanism exists for interested students at either university to spend one semester at the other to do course work not available on the home campus. Cornell's expertise in tropical agriculture makes this arrangement highly desirable.

Meharry Medical College -- Discussions have been initiated with Meharry on joint activities which might be undertaken in the future. Given Meharry's experience in Africa and in community based MCH activities, such collaboration might be highly valuable for MIT. Among the linkages discussed were (1) joint MIT - Meharry research or advisory teams particularly on Africa Projects; (2) faculty exchange for short time periods and (3) joint participation in workshops and seminars.

Other U.S. institutions with whom such collaboration would be useful are Stanford (which has been doing important work on project level planning and evaluation and the application of micro-economics), Johns Hopkins (which has specialized in international health planning and family planning), Michigan State (with considerable expertise in agricultural sector planning), the University of Michigan (doing work in the application of systems analysis to community nutrition), VPI (which has been innovative in applied nutrition delivery systems), and COMST (the food technology consortium).

Among international institutions, M.I.T. anticipates close collaboration with several. One is the Institute of Development Studies in Sussex England which has become involved in international nutrition research and training. Already the INP Program and the Institute have been carrying out a dialogue on nutrition research priorities and exchanging personnel for short-term workshops. Both the training and research objectives of the INP Program should be strengthened by this relationship.

Another overseas institution with whom close linkages are being established is the University of Brasilia. During 1974 under the sponsorship of AID, the INP Program invited one faculty member from the University to participate in INP activities and graduate courses for several months. AID is also sponsoring INP Program inputs for a workshop in Brasilia co-sponsored by the University and the AID Mission. A third institution with whom the INP Program maintains close contact is INCAP. As mentioned earlier, (1) these entities worked closely on the El Salvador project, and (2) an M.I.T. faculty member affiliated with the INP Program is spending a year working on the INCAP staff.

In the course of its research and advisory activities, the INP Program anticipates continued development of such linkages in low income countries. Already such activities have led to close contact with numerous institutions including Kasetsart University in Bangkok, the Nutrition Laboratories in Bogor, Indonesia, the All India Institute of Medical Sciences in New Delhi, and Cayetano Heredia University in Lima. Linkages will be developed with three institutes in Pakistan as part of the INP Pakistan project.

Finally the INP Program anticipates continued close relationships with voluntary agencies and other donors. The AID-sponsored INP workshop for voluntary agency personnel has led to several requests for follow-up activities including participation in regional workshops. INP Program personnel have been assisting CARE, in an advisory capacity, in the development of several program activities in India.

The Program maintains close relationships with UNICEF, WHO, PAHO, FAO, and IBRD and has been carrying out contract activities for several of them.

The INP Program would like to institutionalize these linkages in several ways. In some cases, e.g., the monograph series with Cornell and the joint research undertakings with Harvard, this has already been done. In other cases, it would be desirable to initiate automatic systems of information exchange and seminar and dissertation announcements. In yet other cases, periodic meetings to review the state of the art, the research gaps, training needs and planning methodologies might be highly useful. Ultimately, some type of formal or informal consortium of these institutions may be useful. At present, such an entity probably would be premature.

AID 211(d) support would provide personnel and infrastructure to initiate and support such linkages. Again the value of the linkages will be somewhat proportional to the value of the research, planning, and training being undertaken by the institutions.

Development of an effective network of linkages as discussed above, rests on the following assumptions:

- 1) Continued interest and commitment to nutrition planning among the institutions mentioned.

Adequate financial backing for nutrition planning activities in these institutions.

Continued and accelerated interest in nutrition planning by other donors and by voluntary agencies.

AID participation in the programming of necessary linkages and continued AID support through technical support grants and research contracts.

C. Financial Plan

The AID funds granted under this agreement will be additive to existing funding. We shall also, during the life of the grant, be seeking additional financial support for activities under the INP Program.

The enclosed budget projects annual expenditures over the five year period by output and by expenditure category. As indicated in the budget, Output #1, research and planning methods, absorbs roughly 40% of the grant expenditures. This is in part a function of the graduate research assistant costs, most of which have been linked with this output. Output #2 training and education, accounts for another 25%. Twenty percent is directed toward Output #3, development of advisory capabilities. Expenditures directed at Output #4, development of linkages, is projected at roughly 15%. In a project with outputs so highly interrelated, these estimates are necessarily very rough, and should be interpreted accordingly.

In terms of expenditure categories, phasing has been done as follows.

During the first year of the grant, 211(d) funds will support 75% of the salary of the Program Director, and 50% of the salaries of the Research and Training Associate and the Nutrition Analyst. During subsequent years the proportion of the Director's salary supported by the grant will be progressively reduced reaching 30% by the fifth year. An increasing percentage of the Director's salary will be financed by other grants and contracts. Other salary percentages will remain constant. An economic analyst will be added during the second year with 50% of his salary financed by the grant.

In addition, the grant will finance three of six graduate research assistants supported by the Program each year, and two of three INP secretaries. \$16,000 a year has been set aside for visiting staff and affiliated faculty.

Section 211(d) funds for equipment, supplies and materials are reduced over the five year period and will be successively supported by contracts and other grants. Costs for travel, consultants, computer and statistical sources, report production and communications remain constant over the five years.

In arriving at the figures shown for the varying project objectives, we assigned to each objective the proportion of each individual's time that we anticipate will be expended on that objective. Thus the Program Director's salary was allocated proportionally over all four objectives; the Research and Training Associate's salary over the first two objectives; etc. Similarly non-salary expenses were allocated among objectives according to our best estimate of their relative demand on resources.

The project budget is supplemented by related information on anticipated Program support from other sources. The only outside support indicated is that already in hand or immediately anticipated. This explains the larger proportion of outside funds in the early years.

At the conclusion of the 211(d) grant period, the INP Program would expect to continue its activities without reduction of program inputs. The Massachusetts Institute of Technology will continue to support those tenured faculty brought to the Institute with support from the Section 211(d) grant. For non-tenured faculty and non-faculty members of the Program, the Institute accepts an obligation to exert its best efforts to secure funding that will ensure the continued activity of the program, consistent with standard university norms and practices concerning academic contracts and departmental needs. Partial financing of a general nature would be expected from foundations or international agencies. More importantly, it is anticipated that a progressively increasing proportion of program activities will be carried out on a self-financing basis. Research and advisory services increasingly would be financed by interested governments or international agencies. Similarly training and graduate work would be largely self-financing, or financed by major research or planning activities.

	<u>First Grant Year</u>			<u>Second Grant Year</u>			<u>Third Grant Year</u>			<u>Fourth Grant Year</u>			<u>Fifth Grant Year</u>		
<u>INPUTS</u>															
1. Salaries, wages and benefits		82,651		68,293		91,176		91,726		92,177					
2. Graduate student staff		27,000		27,000		27,000		27,000		27,000					
3. Library and															
Research materials		1,500		2,000		2,000		1,358		1,442					
4. Travel		10,000		10,000		10,000		10,000		10,000					
5. Equipment & supplies		3,000		2,500		1,600		1,500		1,500					
6. Publications, reports		1,000		2,000		2,000		2,000		2,000					
7. Other direct costs															
a. Consultants		2,500		2,500		2,500		2,500		2,500					0
b. Computer		2,000		2,000		2,000		2,000		2,000					2,000
c. Communications		1,200		1,500		1,200		1,200		1,200					1,200
Total Costs by Inputs		<u>119,751</u>		<u>137,793</u>		<u>139,576</u>		<u>139,394</u>		<u>137,419</u>					
<u>OBJECTIVE/OUTPUTS</u>															
	<u>Man</u>	<u>Est'd</u>	<u>Other</u>	<u>Man</u>	<u>Est'd</u>	<u>Other</u>	<u>Man</u>	<u>Est'd</u>	<u>Other</u>	<u>Man</u>	<u>Est'd</u>	<u>Other</u>	<u>Man</u>	<u>Est'd</u>	<u>Other</u>
	<u>Mos.*</u>	<u>Cost</u>	<u>Contrib.</u>	<u>Mos.*</u>	<u>Cost</u>	<u>Contrib.</u>	<u>Mos.*</u>	<u>Cost</u>	<u>Contrib.</u>	<u>Mos.*</u>	<u>Cost</u>	<u>Contrib.</u>	<u>Mos.*</u>	<u>Cost</u>	<u>Contrib.</u>
<u>Grant Objective/Output #1**</u>															
Research on planning															
methods	24.5	55,700	182,265	25.9	56,208	130,598	25.9	59,962	55,341	25.5	60,323	55,611	25.2	60,019	55,527
<u>Grant Objective/Output #2</u>															
Training and Education	25.4	33,511	65,846	26	36,200	68,681	26	35,439	64,150	25.5	35,406	64,237	25.4	34,850	64,153
<u>Grant Objective/Output #3</u>															
Development of Advisory	19.5	25,223	36,338	20	27,633	138,881	20	27,129	34,187	19.6	26,272	34,044	19	25,368	33,861
capabilities															
<u>Grant Objective/Output #4</u>															
Languages	9.4	16,347	17,531	10	17,752	18,181	10	17,646	18,353	10	17,443	18,423	9.8	17,182	18,337
Total Costs by Outputs	78.8	130,781	302,000	81.9	137,793	347,641	81.9	139,576	172,061	80.6	139,394	172,315	79.4	137,419	172,028

\*Excluding graduate students

\*\*Includes MIT contribution and grants from Rockefeller Foundation, NSF, AID, in hand as well as in negotiation

\*\*\*Includes all graduate student support

<u>OBJECTIVE/OUTPUTS</u>	<u>TOTAL ESTIMATED COST LIFE-OF-PROJECT GRANT</u>	
	<u>211 (d)</u>	<u>OTHER</u>
<u>Grant Objective/Output #1</u> Research on planning methods	292,212	480,662
<u>Grant Objective/Output #2</u> Training and Education	175,406	322,067
<u>Grant Objective/Output #3</u> Development of Advisory Capabilities	131,575	272,411
<u>Grant Objective/Output #4</u> Linkages	<u>85,770</u>	<u>90,905</u>
Total Costs by Outputs	634,963	1,166,045

INPUTS OVER FIVE YEAR LIFE OF PROJECT

1.	Salaries, Wages and Benefits .....	445,863
2.	Graduate Student Staff .....	135,000
3.	Library and Research Materials .....	8,300
4.	Travel* .....	50,000
5.	Equipment and Supplies .....	10,000
6.	Publications, Reports .....	9,000
7.	Other Direct Costs	
	a. Consultants .....	10,000
	b. Communications .....	<u>16,700</u>
	and Computer	
	Total .....	684,863

\*Includes estimated per diem.

LINKAGES AND UTILIZATION

A. The establishment of effective linkages with a network of domestic and international institutions dealing with the nutrition problems of low income countries is considered basic to the achievement of the project goal. Accordingly, the development of linkages with institutions in the U.S. and abroad and with assistance agencies is regarded as a major objective of the grant and as such is discussed in detail under Section III.

B. Plans for utilization of the increased institutional capacity permitted by the 211(d) grant are discussed under each of the sub-objectives in Section III. A brief summary is presented here. First, M.I.T. will provide a spectrum of multidisciplinary graduate study and training. This will be accomplished by the provision of: a) graduate and undergraduate programs; b) a nine-month non-degree Advanced Study Program; and, c) short-term problem-oriented training programs and workshops. All of these training programs are currently in progress but will be enlarged or intensified with this grant support. A second aspect of utilization is research to increase general understanding of nutrition dynamics and programs, and the dissemination of this information. The third area of utilization is the direct involvement of INP personnel in advisory services to governments and international agencies. It is anticipated that AID will be helpful in identifying targets of opportunity where INP Program inputs can be useful in problem solving.

## V. EVALUATION AND REPORTING

The ability to plan and specifically detail the outputs of a grant operation of this nature is exceedingly difficult. Therefore, at some point between the first year and year and a half of Grant operations, appropriate representatives of M.I.T. will be prepared to meet with AID officials to review and reassess the statement of Grant purpose, the specific objectives/outputs to be produced, their magnitude and timing, means of verification or progress and completion, and critical assumptions. At this time, both parties may agree that specific objectives/outputs should change in priority, in scope or direction, or remain as originally contemplated. Such a review should also include a presentation and analysis of the grantee's basic approach and methodology, the need for action by AID or other organizations outside the control of the grantee, and any need for formal revision of Grant terms and conditions, expected results, etc.

In addition to the submission of annual reports, the grantee will seek occasions to consult with and involve AID in professional interchanges including exchange of visits (and possibly staff), workshops and seminars, and joint travel.

During the fourth year of the Grant, an AID team will be invited to meet on-site with the grantee to jointly review performance by both parties and grantee accomplishments with emphasis on new knowledge and opportunities, linkages, and actual and potential use of institutional capacity. At that time, the Institute will be prepared to discuss grant expiration, revision and alternatives as deemed appropriate and within the framework of current AID policies and priorities and LDC needs.

It is envisioned that after five years: (a) the Institute will be recognized internationally as a center of excellence within the U.S. for information, expertise, methods and research capacity for multisector nutrition planning at national and regional levels in LDCs; (b) this expertise and orientation will be absorbed into the academic mainstream of MIT; (c) there will be continuing and significant involvement of the Institute with LDC and international organizations; and (d) financing will be available for sustaining selected program elements.

To assess progress toward achieving these objectives during the life of the grant preliminary milestones have been established for each of the four output areas. However one of the first tasks to be undertaken by the Institute is development of a baseline to establish the magnitude and nature of current activities in each of these areas, and against which future progress can be measured.

BUDGET SUMMARY

Salaries , wages and benefits	\$445,900
Graduate Stipends	135,000
Library and Research Materials	8,300
Travel	50,000
Equipment & Supplies	10,100
Publications & Reports	9,000
Other Direct Cost	<u>26,700</u>
	.\$685,000

STANDARD PROVISIONS1. Grant Agreement

The letter to the Grantee, signed by the Administrator, Agency for International Development, (or his Deputy), the Final Proposal as agreed to by the Grant Officer, and the Standard Provisions which have been reviewed and agreed to by the Grantee, constitute the Grant Agreement.

2. Adherence to Aims

The Grantee is responsible for adhering to the conditions of this Grant. Although the Grantee is encouraged to seek the advice and opinion of the Agency for International Development (AID) on special problems that may arise, such advice does not relieve the Grantee from the responsibility for making sound technical and administrative decisions.

3. Budget

In no event may the Grantee exceed the total amount of the Grant. Adjustments among the summary budget categories are unrestricted.

4. Reports

A. The Grantee shall submit an annual report to the AID sponsoring technical office in the form, manner, and numbers of copies as shall be prescribed by AID guidelines which shall be furnished to the grantee. This annual report shall serve as the basis for AID's annual management review to determine grantee's satisfactory accomplishment of Grant objectives and purposes. Findings as a result of the AID review will be conveyed to the grantee for such actions as the parties deem appropriate.

B. The last annual report to be submitted under the grant shall serve as the final report. This report shall be submitted as soon thereafter but

no later than six months after completion or termination of the grant. The final report shall describe all major accomplishments under the grant, numbers of degrees granted, a bibliography of all publications produced as a result of the grant, plus other data, as appropriate, sufficient to enable the reader to evaluate all aspects of the program as undertaken.

C. Each annual report shall be accompanied by a Fiscal Report. This report shall reflect expenditures (by summary budget categories) during the reporting period as well as cumulative expenditures. The details of the fiscal data shall be set forth in the Guidelines provided by AID. The final fiscal report shall give a summary accounting (by summary budget categories) of all funds expended under the Grant.

#### 5. Reviews

AID will conduct on-site reviews and evaluation of Grantee's progress at intervals specified herein.

- A. Initial design review within 18 months after grant award date.
- B. Comprehensive review during fourth year of grant.
- C. Bi-annually thereafter, if extended.

#### 6. Publications

A. If it is the Grantee's intention to identify AID's contribution to any publication resulting from this Grant, the Grantee shall consult with AID on the nature of the acknowledgment prior to publication or whether acknowledgment should be made.

B. The Grantee shall provide the sponsoring AID technical office with one copy of all published works developed under the grant, as well as lists

of other written work produced under the grant.

C. In the event grant funds are used to underwrite the cost of publishing, any profits or royalties up to the amount of such cost attributable to the grant shall be credited to the grant.

D. Any copyrights shall be in the name of the Grantee. However, the Government shall have a royalty-free, non-exclusive irrevocable license for the use of all publications produced or composed under this Grant.

#### 7. Patents

A. Grantee agrees to notify the Grant Officer, in writing, of any invention or discovery conceived or first actually reduced to practice in the course of or under this grant. The Grant Officer will determine the patent rights to be afforded the Grantee in accordance with the Presidential Memorandum and Statement of Government Patent Policy 36 FR 16887.

B. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.

#### 8. Salaries

All salaries, wages, fees, stipends, and allowances reimbursed under this Grant shall be in accordance with the Grantee's usual policy and practice.

#### 9. Allowable Costs and Payment

The Grantee shall be reimbursed for direct costs incurred in carrying out the purposes of the grant. Allowability of such costs shall be determined by the Administrator in accordance with the Office of Management and Budget Circular A-21 (Principles for Determining Costs Applicable to Research and Development under Grants and Contracts with Educational Institutions); and the

~~terms~~ of this Grant. It is mutually understood and agreed, unless otherwise provided herein, that the Grantee will not allocate any costs to this Grant, which are normally charged as indirect costs (overhead) in accordance with the Grantee's normal accounting practices. Payment of costs incurred under this grant shall be in accordance with the procedures set forth in Appendix "A" attached hereto and made a part hereof.

10. Accounting, Records, and Audit

The Grantee shall maintain books, records, documents, and other evidence in accordance with the institution's usual accounting procedures to sufficiently substantiate charges to the grant. The Grantee shall preserve and make available such records for examination and audit by AID, the Comptroller General of the United States, or their authorized representatives (1) until the expiration of 3 years from the date of termination of the program and (2) for such longer period, if any, as is required to complete an audit and to resolve all questions concerning expenditures unless written approval has been obtained from the AID Grant Officer to dispose of the records. AID follows generally accepted auditing practices in determining that there is proper accounting and use of grant funds.

11. Ineligible Countries

Unless otherwise approved by the Grant Officer; no grant funds will be expended in countries ineligible for assistance under the Foreign Assistance Act of 1961, as amended, or in countries which are ineligible for assistance under acts appropriating funds for foreign assistance.

12. Unexpended Funds

A. Funds obligated hereunder but not disbursed to the Grantee at the time the grant expires or is terminated, shall revert to AID. Any funds disbursed

to but not expended by the Grantee and in the custody of the Grantee at the time of expiration or termination of the Grant shall be refunded to AID.

B. If, at any time during the life of the grant, it is determined by the Administrator, AID, that funds provided under the grant have been expended for purposes not in accordance with the terms of the grant, the Grantee shall credit such amounts to the corpus of the grant.

C. Expenditures which may be disallowed at the time of final audit will be refunded to AID.

13. Procurement of Equipment, Vehicles, Materials, Supplies and Services

A. No vehicles shall be purchased unless prior written approval is obtained from the Grant Officer.

B. Except as may be specifically approved or directed in advance by the Grant Officer, or as provided in paragraph (C) below, all equipment, vehicles, materials, supplies, and services purchased under this Grant shall be purchased in the United States, and in the case of commodities, shipped from the United States to the country of usage. In addition, for any purchase transaction in excess of \$2,500, the Grantee shall notify the supplier that the item(s) must be of U.S. source and production and comply with the componentry limitations and other requirements applicable to suppliers under AID Regulations, and that the supplier must execute and furnish Form AID-232, "Suppliers Certificate and Agreement with the Agency for International Development."

C. Printed or audit visual teaching materials may, to the extent necessary, be purchased with grant funds outside the United States when:

(1) effective use of the materials depends on their being in the local language; and

(2) other funds including U.S. owned and controlled local currencies are not readily available for procurement of such material.

The order of preference as to countries in which such purchases outside the United States are made shall be:

- (1) The AID receiving country.
- (2) Countries falling within AID Geographic Code 901.
- (3) Other countries falling with AID Geographic Code 899.

AID Geographic Codes are defined in AIDPR 7-6.5201-0.

The Grantee may purchase English language books, magazines, and other periodicals from the current AID Contractors providing purchasing services of such material at discount prices. The procedures to be followed, the name and address of the Contractors, and pertinent provisions of the Contracts are set forth in AID Manual Orders 1425.8 (books) and 1425.3.1 (Subscriptions of magazines and periodicals).

D. Procurements in the Cooperating Country which are less than \$2,500.00 and are for materials (regularly available and normally sold on the local market) which are to be consumed or expended in the performance of this grant, are exempt from the conditions of Paragraph B above, provided that the origin of such materials and supplies and the component parts thereof is a free world country as described in AID Geographic Code 935.

#### 14. Title To and Use of Property

Title to all property purchased with funds to be attributed to this Grant shall vest in the Grantee, subject to the following conditions:

A. The Grantee shall not, under any Government contract or subcontract thereunder, or any Government grant, charge for any depreciation, amortization,

or use of any property title to which remains in the Grantee under the clause.

B. The Grantee agrees to use and maintain the property for the purpose of the grant.

C. With respect to items having an acquisition cost of \$1,000.00 or more, title to which vests in the Grantee, the Grantee agrees:

(1) to report such items to the Grant Officer from time to time as they are acquired and to maintain a control system which will permit their ready identification and location.

(2) to transfer title to any such items to the Government in accordance with any written request therefor issued by the Grant Officer at any time prior to final payment under the grant.

Exceptions to this clause will be as approved by the Grant Officer.

15. Capital Expenditures

Grant funds may not be used for new construction, alterations or improvements to buildings, fixtures, or facilities.

16. Travel and Transportation

A. The Grantee shall obtain written concurrence from the sponsoring AID technical office prior to sending any individual outside the United States to perform work under the grant or employing any person outside the United States to perform work under the grant. For this purpose the Grantee shall advise the sponsoring AID technical office at least thirty (30) days in advance of any travel to be undertaken outside the United States.

Grantee will not be reimbursed for travel expenses of dependents, or transportation of effects, of foreign nationals brought to Grantee's institution for purposes in furtherance of the objectives of the grant.

B. Travel to certain countries shall, at AID's option, be funded from U.S.-owned local currency. When AID intends to exercise this option, it will so notify the Grantee after receipt of advice of intent to travel required above. AID will issue a Government Transportation Request (GTR) which the Grantee may exchange for tickets, or AID will issue the tickets directly. Use of such U.S.-owned currencies will constitute a dollar charge to this grant.

C. The Grantee agrees to travel by the most direct and expeditious route, and to use less-than-first-class transportation unless such use will result in unreasonable delay or increased costs.

(1) All international air travel under this grant shall be made on United States flag carriers. Exceptions to this rule will be allowed in the following situations provided that the Grantee certifies to the facts in the voucher or other documents retained as part of his grant records to support his claim for reimbursement and for post audit:

(a) where a flight by a United States carrier is scheduled but does not have accommodations available when reservations are sought;

(b) where the departure time, routing, or other features of a United States carrier would interfere with or prevent the satisfactory performance of official business;

(c) where a scheduled flight by a United States carrier is delayed because of weather, mechanical, or other conditions to such an extent that use of a non-United States carrier is in the Government's interest;

(d) where the appropriate class of accommodations is available on both United States and non-United States carriers, but the use of the United States carrier will result in higher total United States dollar cost to the grant due to additional per diem or other expenses; and

(e) where the appropriate class of accommodations is available only on a non-United States carrier and the cost of transportation and related per diem is less than the cost of available accommodations of another class on a United States carrier and related per diem.

(2) All international air shipments under this grant shall be made on United States flag carriers unless shipment would, in the judgment of the Grantee, be delayed an unreasonable time awaiting a United States carrier either at point of origin or transshipment, provided that the Grantee certifies to the facts in the vouchers or other documents retained as part of the grant records to support his claim for reimbursement and for post audit.

17. Regulations Governing Employees Outside the United States

A. The Grantee's employees, when employed in work overseas, shall maintain institution status and may not rely on local U.S. Government Offices or facilities for support while so engaged.

B. The sale of personal property or automobiles by Grantee employees and their dependents in the foreign country to which they are assigned shall be subject to the same limitations and prohibitions which apply to direct-hire AID personnel employed by the mission.

C. Other than work to be performed under this grant for which an employee or consultant is assigned by the Grantee, no regular or short term employee or consultant of the Grantee shall engage, directly or indirectly, either in his own name or in the name or through an Agency of another person, in any business, profession, or occupation in the foreign countries to which he is assigned, nor shall he make loans or investments to or in any business, profession or occupation in the foreign countries to which he is assigned.

D. The Grantee's employees, while in a foreign country, are expected to show respect for its conventions, customs, and institutions, to abide by its applicable laws and regulations, and not to interfere in its internal political affairs.

E. In the event the conduct of any Grantee employee is not in accordance with the preceding paragraphs, the Grantee's representative responsible for the Grant's activities shall consult with the mission director and the employee involved, and upon agreement of these parties, shall adopt a course of action with regard to such employee.

F. The parties recognize the right of the United States Ambassador to direct the removal from a country of any United States citizen employed under this Grant or the discharge from this Grant of any third country national or foreign country national when, in the discretion of the Ambassador, the interests of the United States so require.

18. Conversion of United States Dollars to Local Currency

Whenever practicable Grantee agrees to convert all United States dollars to local currency through the United States Disbursing Officer, American Embassy, unless the Disbursing Officer certifies that no local currency is available.

19. Visa Status of Non-U.S. Citizens

AID will not intercede on behalf of non-U.S. citizens participating in a project when the stay of such non-citizens in the U.S. may be affected by their visa status. It is the responsibility of the Grantee institution to establish, before accepting a non-citizen, that his visa allows him to remain in the country a sufficient length of time to be productive on the project.

20. Grant Officer

All correspondence relating to the terms and conditions of any part of this grant shall be directed to the Grant Officer, Office of Contract Management, Contract Operations Division, AID, Washington, D.C. 20523.

21. Amendment

The Grant Agreement may be amended by formal modifications to the basic grant document or by means of an exchange of letters between the AID Grant Officer and an appropriate official of the Grantee.

22. Termination

This Grant may be terminated by the Administrator upon written notice to the Grantee after consultation between representatives of the Grantor and Grantee. Upon the Grantee's receipt of notice of such termination it shall take immediate action to minimize all additional obligations financed by this Grant and shall cancel such unliquidated obligations wherever possible. No further reimbursement shall be made

after the effective date of termination, and the Grantee shall, within thirty (30) calendar days after the effective date of such termination, repay to the Grantor all unexpended portions of funds theretofore paid by the Grantor to the Grantee which are not otherwise obligated by a legally binding transaction with the purposes of this Grant. Should the funds paid by the Grantor prior to termination of this Grant be insufficient to cover the Grantee's obligations pursuant to the aforementioned legally binding transaction, the Grantee may submit to the Grantor within (90) calendar days after the effective date of such termination, a written claim covering such obligations and, subject to the limitations contained in this Grant, the Grantor shall determine the amount or amounts to be paid by the Grantor to the Grantee under such claim.

23. Equal Opportunity Employment

With regard to the employment of persons in the U.S. under this grant, Grantee agrees to take all reasonable steps to insure equality of opportunity in its employment practices without regard to race, religion, sex, color, or national origin of such persons and that, in accordance with Title VI of the Civil Rights Act of 1964 when work funded by this grant is performed in the U.S. no person shall, on the grounds of race, religion, sex, color, or national origin, be excluded from participation, be denied benefits, or be subjected to discrimination. In addition, the Grantee agrees to comply in accordance with its written assurance of compliance, with the provisions of Part 209 of Chapter II, Title 2 of the Code of Federal Regulations, entitled "Non-Discrimination in Federally Assisted

Programs of the Agency for International Development - Effectuation of Title VI of the Civil Rights Act of 1964."

24. Unauthorized Use of Funds

The Grantee shall not expend funds provided under this grant to support, in part, directly or indirectly, services which are to be provided under other contractual/grant agreements between the Grantee and any U.S. Federal agency.

25. Nonliability

AID does not assume liability with respect to any claims for damages arising out of work supported by its grants.

26. Covenant Against Contingent Fees

The Grantee warrants that no person or selling agency has been employed or retained to solicit or secure this grant upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee except bona fide employees or bona fide established commercial or selling agencies maintained by the Grantee for the purpose of securing business. For breach or violation of this warranty, AID shall have the right to cancel this grant without liability or, in its discretion, to deduct from the grant amount, or otherwise recover, the full amount of each commission, percentage, brokerage, or contingent fee.

27. Officials Not to Benefit

No member of or delegate to the Congress or resident Commissioner shall be admitted to any share or part of the grant or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this grant if made with a corporation for its general benefit.

28. Notices

Any notice given by any of the parties hereunder shall be sufficient only if in writing and delivered to the following:

To AID: Administrator  
Agency for International Development  
Washington, D.C. 20523  
Attention: Grant Officer  
Office of Contract Management  
Contract Operations Division

To Grantee: At address shown on covering letter

APPENDIX "A"

PAYMENT PROVISIONS

ARTICLE I - DISBURSEMENT OF FUNDS AND FISCAL REPORTS

A.I.D. will disburse funds promptly to Grantee, on a reimbursement basis, under the following procedure:

At the convenience of the Grantee but not more often than once a month, the Grantee will submit to the Office of Financial Management, A.I.D. Voucher Form 1034 (original) and three copies of Voucher Form 1034(a), properly executed, totalling Grantee's expenditures during the period covered for which reimbursement hereunder is sought, together with an original and two copies of a certified fiscal report rendered by the Grantee in a form and manner satisfactory to A.I.D. substantially as follows:

Project:	<u>AID Grant Period:</u>			No. _____
	<u>1974</u>	<u>Expenditure</u>	<u>Grant Fund Expenditures</u>	
	<u>Budget</u>	<u>To Date</u>	<u>To Date</u>	<u>This Period</u>
Category (From Attachment II)	\$ _____	\$ _____	\$ _____	\$ _____
	_____	_____	_____	_____

The fiscal report shall include a certification signed by an authorized representative of the Grantee as follows:

"The undersigned hereby certifies: (1) that payment of the sum claimed under the voucher is proper and due the terms of the grant; and (2) that the information on the fiscal report is correct and such detailed supporting information as A.I.D. may require will be furnished by the Grantee

promptly to A.I.D. upon request.

BY \_\_\_\_\_

TITLE \_\_\_\_\_

DATE \_\_\_\_\_

An original and two copies of a final fiscal report shall be submitted to the Office of Financial Management, A.I.D. within 90 days of the end of the calendar quarter in which the period for which the grant was made ends. The final fiscal report shall also be accompanied by an original and three (3) copies of SF-1034 and SF-1034(a), marked "Final Voucher."

The parties agree that, if after reviewing the fiscal reports or other cost data, it is determined by the Grant Officer that funds provided under the grant have been expended for purposes not in accordance with the terms of the grant, the Grantee will refund such amounts as directed by the Grant Officer.

DEPARTMENT OF STATE  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D. C. 20523

Proj. No. 9310160  
Pd-

OFFICE OF  
THE ADMINISTRATOR

MAY 31 1974

Dr. Jerome B. Wiesner  
President  
Massachusetts Institute of Technology  
Cambridge, Massachusetts 02139

Dear Dr. Wiesner:

I am pleased to inform you that pursuant to the authority contained in Section 211 (d) of the Foreign Assistance Act of 1961, as amended, Grant No. AID/049-1113 in the amount of \$685,000 is hereby made to the Massachusetts Institute of Technology. These grant funds are provided to support the activities which are described in your Final Proposal dated May 22, 1974, as revised May 23, 1974, for the implementation of your program entitled "Nutrition Planning in Low Income Countries." This Grant is made to the Massachusetts Institute of Technology on condition that your institution shall administer the funds provided under this Grant in accordance with the terms and conditions set forth in your Final Proposal (including Budget Summary) and the Standard Provisions which have been agreed to by your institution and which are attached hereto and made a part hereof. To the extent of any inconsistency between the Proposal and the Standard Provisions, and any other provisions which are made a part of this Grant, by reference or otherwise, the Standard Provisions shall control.

This grant is effective as of the date of this letter, and shall apply to costs incurred in furtherance of the above mentioned program for a period of five years from the aforementioned date.

Please sign the Statement of Assurance of Compliance and the original and seven (7) copies of this letter to acknowledge your understanding of the conditions under which these funds have been granted. Please

return the Statement of Assurance of Compliance and the original and six (6) copies of this Grant to the Office of Contract Management.

Sincerely yours,

*John E. Murphy*

John E. Murphy  
Deputy Administrator

Attachments:

1. Statement of Assurance of Compliance
2. Final Proposal and Budget Summary
3. Standard Provisions
4. Appendix "A"

ACCEPTED:

MASSACHUSETTS INSTRUMENTS OF TECHNOLOGY

BY *Edward H. O'Brien*  
EDWARD H. O'BRIEN

TITLE Nice President for Manufacturing Operations

DATE JUN 14 1974

APPROVED

FUNDS OBLIGATED	
Approp. No.	72-11X1023
Allot. No.	402-31-079-00-34-41
Obl. No.	3149160 - Obj. cl. 259
Amount \$	685,000.00
Proj. No.	731-11-560-160-73
By	<i>gcb</i>
Date	5/31/74