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NUTRITION RESEARCH

The Role of the Agency for International Development

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The Nutrition research program of the Agency for International Development must be viewed against overall objectives of the A.I.D. program, developments in our knowledge about nutrition during recent years and worldwide trends in terms of population growth and availability of food, on a per capita basis, in the developing countries of Latin America, Africa and Asia.

The objectives of A.I.D., or predecessor agencies, have been described and defined in many ways. The basic objective has been stated as follows: "To assist other countries that seek to maintain their independence and to develop into self supporting nations". Although an overriding emphasis remains on mutual security, greater emphasis has been given in the last few years to economic development in the less developed countries. There can be no doubt that the humanitarian tradition of the United States has played, and continues to play a role in this program.

In view of A.I.D. goals, it is not difficult to justify interest in health sector programs or projects. It is clear that health and food are at the very top of human preoccupations, hence programs in this sector can have a unique impact on people the world over. At the present time the high incidence of preventable infectious disease, widespread malnutrition and high rates of population growth constitute major obstacles to social and economic development. The diseases which cause premature death of large numbers of people result in loss of human capital. The diseases, such as malnutrition, which produce recurrent or chronic illness and disability may cause absenteeism at critical harvest or planting periods, diminished productivity, industrial absenteeism of skilled manpower, diminished school attendance and performance, decreased initiative and energy as well as stunted physical growth and possible mental retardation.

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The problem of which comes first, adequate health and nutrition or economic development is behind many of the uncertainties in planning. The fact that health and good nutrition are purchaseable and that in countries with high per capital income the pattern of disease is not one that is a major curb on economic development, is complicated by the fact that healthy, well nourished human resources are needed to spur economic and social development. During the post war period many organizations and institutions, governmental and private, as well as many individuals, contributed to our knowledge of nutrition. There have been few institutions that have had a wider influence worldwide than the Interdepartmental Committee on Nutrition for National Defense (ICNND). The Committee has recently been somewhat reorganized with an administration home in the National Institutes of Health. With this reorganization has come a sharper focus on the nutrition problems as related to development rather than defense, and with this will come a change in name to the Interdepartmental Committee on Nutrition for National Development. The ICNND serves as the major governmental resource in all matters related to nutrition and nutrition research. A major objective during the past 18 months has been the development of a permanent administrative base and the development of stronger financial support for the ICNND. We now have some of these hurdles behind us and I hope we can turn more attention to the substantive nutritional problems that must be solved.

There have been several recent advances in nutrition that have particular relevance for our total foreign aid effort, including A.I.D., Food for Peace, voluntary and private organizations, as well as the multilateral agencies that receive support from the American public such as the World Bank, UNICEF, FAO and WHO. The advances in our knowlege have pointed more and more to the importance

of adequate nutrition for mothers and children. The finding that kwashiorkor is not an unusual African disease, but is widespread throughout the world, the importance of vitamin A deficiency and goiter as world problems and causes of blindness and mental retardation in many parts of the world; the potential importance of zinc in growth and vitamin B<sub>6</sub> in mental retardation; the relationship between nutrition, infestation and infection; the role of anemics of pregnancy, their relationship to nutrition and their effects on the newborn; and the probable effects of protein malnutrition in infancy or early childhood on physical growth and mental development all have helped focus our attention on the fact that malnutrition is one of the most important health problems of the world, the significance of this in terms of social and economic development is only gradually being appreciated and the mobilization of effective programs of action to counteract the problem has not yet been accomplished on a wide scale.

While learning more about the specifics of certain nutritional deficiencies we have developed a better understanding of the multiple biological, physical, social, economic and cultural factors that are related to the development of disease. The concept that disease represents a maladjustment of the organism to his environment is certainly not new but is particularly relevant to the problems of malnutrition.

There have been several other very significant developments during the past thirty years that are directly related to our concern for health and peace. I will describe these briefly, using quotations from three distinguished individuals. In an address before the American Chemical Society in Chicago on

September 1, 1964, Raymond Ewell, Vice President for Research, State University of New York at Buffalo, stated:

"The world is on the threshold of the biggest famine in history. Not the world we live in, but in the underdeveloped world, the three poor continents of Asia, Africa and Latin America. The population of these continents is growing rapidly, and production of food in these continents is lagging behind the population growth. This is the problem in a nutshell. This is the greatest and most nearly insolvable problem in the history of the world. And it is almost here."

In his address Dr. Ewell stressed that in the short-run, increased agricultural production particularly through use of more fertilizers but also improved irrigation, better seed varieties, more pesticides, widespread education and other technical inputs as well as better economic incentives for the producers. He shares the view of many, that the only adequate long-term solution lies in birth control.

In an address on world food problems last spring, Mr. Ezekiel of the United Nations Division of A.I.D. noted:

"Since the late 50's there has been a significant turn for the worse in less developed countries with population levels recently increasing faster than the food supply levels. This threatening development is due to a general downward trend in death rates with as yet no corresponding reduction in birth rates, and a resultant rapid speeding up of population growth in all less developed regions."

He went on to say:

"Possible solutions to this problem include not only continued and intensified efforts to modernize and increase food production in

less developed countries, and to check the upward surge in population growth rates, but also efforts to further speed up industrial and other non farm progress, so that less developed regions could increasingly afford to import commercially more of their food from other regions with more ample land resources, particularly from the U. S. and Canada."

In his excellent monograph "Man, Land and Food", Lester Brown, International Agricultural Economist in the U. S. Department of Agriculture wrote:

"If capital is not readily available in land-short areas, indigenous needs can be met neither through capital substitution for land in the production mix nor through food purchases from other areas. Situations of this sort, now emerging rapidly in Asia, give rise to serious social, economic and political problems. Unless some means of alleviating this situation can be found soon, the problem may acquire a critical dimension without precedent."

This then is the context for our thinking about nutrition research and the role of the Agency for International Development. In our thinking about nutrition research we have tried to avoid merely looking at one or another facet of the problem but rather we have tried to grasp in some rational fashion the whole complex problem. It is clear that progress in nutrition and health is dependent on complexly interrelated scientific, economic, educational, environmental, social and cultural factors and certainly developments in health and nutrition must be phased with development in other areas if permanent benefit is to result.

What are some of the ways in which the nutrition program of A.I.D. focuses on these problems? I will take three examples of the type of research that we are trying to stimulate and find support for within A.I.D.

A food consumption survey for the Republic of Korea is now being developed with the close cooperation of the Government of Korea, the U. S. AID Mission in Korea, the Far East Regional Bureau of A.I.D. and the ICNND. At present there is no evaluation of the overall food consumption in Korea. The Economic Planning Board, as well as the Ministries of Health and Agriculture, in collaboration with USOM/Korea, need this information for estimating import requirements; determining acreage required to meet future needs in terms of quality and quantity to assure adequate health; to determine where, if necessary, shifts in the pattern of consumption of available food would improve the nutritional status of the Korean people; and for planning purposes in the development of a food industry and potential export of those items that may yield foreign exchange.

Concurrently the Economic Planning Board, in cooperation with the Ministry of Agriculture, will be launching a program to determine yearly food production. Implementation of these two projects are essential for proper planning and will be extremely useful for determining not only the amounts but the kinds of U.S. surplus foods that would be of maximum benefit to Korea.

The second study is an evaluation of high protein supplements (soy grits and coconut protein) in child feeding operations in the Philippines. The objectives of the study are:

(1) To measure the effect on the health of school children when their usual diet is supplemented by soy grits (donated by USDA under Title II of the Food for Peace Program).

(2) To improve the nutritional value of childrens' diets by supplementing the same with high quality protein food.

(3) To determine whether the product is acceptable and practical and to study the economic implications of the product for future use in the country.

The third project is a study of protein supplementation of children's diets in Chile. This has two parts, a school lunch program and a program for supplementation of preschool children's diets. The aims of the school lunch program are as follows:

(1) To determine the technological problems associated with the pilot-to-mass-production level distribution, storage, preparation at the schools of protein and caloric supplements in the form of fish flour, fish sausage, dried fish, and bulgur mixtures (soya, milk).

(2) To investigate the possible effects of protein supplementation on the nutritional status of primary school children utilizing grain and marine products as the source of supplementation.

(3) To determine the acceptability to the school population of such products.

(4) To analyze the cost per unit protein of fish flour, fish sausage, dried fish, and bulgur in a school feeding program.

(5) To establish the general bases for a choice of supplementation in Chile, and the possibilities for technological and industrial development.

The aims of the supplementation of preschool children's diets are as follows:

(1) To investigate mixtures of products such as soya flour, bulgur wheat flour, corn meal, sunflower seed cake, cottonseed flour, peanut cake, and fish

flour as products which could be utilized for the feeding of infants, preschool children, and expectant mothers.

(2) To determine the technological problems in the preparation in food mixtures based upon the products in (1) specifically adapted to the requirements of the infant and preschool child.

(3) Analyze the cost of production of mixtures of good nutritional value to be utilized in feeding the above group.

(4) To determine the acceptability, tolerance, and nutritional value of mixtures developed specifically for the feeding of infants and preschool children.

(5) To investigate the supplementation of mixtures developed, where necessary, by amino acids, vitamins, etc., in cases where damage in preparation or actual deficiencies in the prepared food exists.

(6) To determine the nutritional effectiveness of mixtures developed under the initial aims of the project on sample population.

The project is divided into two sections, since both sections are complimentary. The first section, dealing with the school lunch program, seeks to evaluate mixtures already developed, some at the commercial level. These mixtures have been, to a large measure, analyzed for nutritional effectiveness but their ultimate cost and the technological problems associated with them have not been fully investigated or compared. The second portion of the experiment seeks to investigate mixtures not unlike those to be utilized in the first section but in addition, to develop new formulas adaptable to feeding the very young, nursing and expectant mothers. In a sense, the aims of the preschool program are laboratory aims at this stage, while those in the school lunch program are applied aims. Cooperation between the two sections is assured since

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the first section requires laboratory assistance in evaluation and nutritional bio-medical problems.

I have touched briefly on some of the major nutritional problems in the developing countries, their relationship to population growth and to economic and social development.

The nutrition program which is developing in A.I.D. is based on almost ten years of experience of the ICNND and the accumulating information from studies throughout the world. Because our financial resources are limited we have given the highest priority to applied research projects related to school children and preschool children. We are attempting to relate much of the research directly to the Food for Peace Program. We also work closely with the Bureau of Commercial Fisheries, particularly in the area of fish protein concentrates. When an FPC meets their standards we plan to support several acceptability studies overseas. Through our own Agricultural and Rural Development Service in the Office of Technical Cooperation and Research, we coordinate our research with their program. This helps keep us in closer touch with FAO and UNICEF activities in nutrition. One project which we helped stimulate support for in A.I.D. was an experiment with intrauterine devices in cattle by the Department of Agriculture at Beltsville. This may seem a little remote from nutrition but if you consider the cattle problem in India you can see how this could have a very direct effect on human nutrition. It's of interest, I think, that these studies have demonstrated that in cattle the IUD may act by inhibiting ovulation. This experiment illustrates why we believe we must support research. Our interest was in controlling cattle populations when they can't be handled by other means. The research can offer us this

answer quite quickly but it has pointed up a far more important possibility in terms of how does the IUD work. The research will now be supported by NIH.

This has been only a thumbnail description of why we are interested in nutrition research with a few examples to illustrate what we are currently supporting. In view of the size of the task we can only hope that it isn't too little and too late.