Martin J. Forman Memorial Lecture

Dr. Alan Berg
Fourth Annual Lecture
June 24, 1991

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Martin J. Forman
Memorial
Lecture

Fourth Annual Lecture

Dr. Alan Berg
Senior Nutrition Advisor
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National Council for International Health Conference
Arlington, VA.

Helen Keller International
15 West 16th Street
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ANNUAL MARTIN J. FORMAN MEMORIAL LECTURE

INTRODUCTION OF SPEAKER -- ALAN BERG

6/24/91

BY DR. ABRAHAM HORWITZ, Director-General of PAHO and Chairman of the UN Sub-Commitee on Nutrition.

We meet again to celebrate the life of Martin Forman, so rich in accomplishments in the pursue of a worthy cause, food and better nutrition for all, particularly the poor. It was their fate and their face, specially the eyes of the children always interrogating our conscience, that constantly stimulated his natural feelings of kindness, understanding, and compassion.

As the series of lectures in his honor show, his ideas and ideals continue to influence decisions by Governments and the international community of agencies to improve nutrition and prolong life. Thus, he continues to live among us.

Our speaker today, Alan Berg, shares with Forman the same professional and humanitarian objectives. He personifies, in my view, the saying that "a man can make a difference." He was able to convince in the World Bank not only his peers in different fields of endeavor but also the authorities and the Board, that nutrition was a significant factor in national development and should be included in all major enterprises to promote it. As a result of his efforts, the Bank has become the major source of technical and financial cooperation to reduce malnutrition in the developing world. At the same time, he has stimulated a series of studies on the economic and social determinants of the nutritional status, the bases for sound policies and programs. The Bank is today a University that teaches through its reports prepared by the best minds in the

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field. The activities of the Bank continuously challenge the international organizations, both public and private, to joined efforts or to extend their cooperation to governments in order to accelerate the reduction of under nutrition and malnutrition.

Alan Berg came to the World Bank eighteen years ago from the Brookings Institutions where he was a Senior Fellow. There he produced the Nutrition Factor: It's Role in National Development, a book nominated by Brookings for the National Book Award, that is still in demand. It is not only rich in valuable information but written in a style that is elegant and pleasant to read. He has been a Visiting Professor of Nutrition at MIT.

During four years in India as Chief of Food and Nutrition for AID, he developed a model for systematic planning in nutrition and was responsible, among other direct services, for coordinating relief during the Bihar famine. For his work in India he was presented the annual Williams Jump Award as the Outstanding Young Public Servant in the U.S. Government.

He worked for three years on the White House staff as Deputy Director of the Food for Peace Program, and when this function was transferred to the State Department, he held the rank of Deputy Assistant Secretary of State.

He chaired the nutrition section of the National Academy of Sciences' World Food and Nutrition Study. He co-chaired a White House Inter-Agency Task Force on Nutrition, and has been a member of a White House Hunger Task Force. He has also served twice on the National Academy of Sciences' Committee on International Nutrition Programs.

He teaches through his writings. He is the author of five books and of chapters in seven others. He has analyzed all determinant,s and types of malnutrition and proposed policies and courses of action in a large number of papers published in Foreign Affairs, the New York Times Magazine, the Harvard Business Review, the New Republic, Natural History, the Washington Post Outlook, the International Development Review, Food Policy, the American Journal of Clinical Nutrition and other professional journals in the field. He writes in a convincing and eloquent style, that invites reading.

In a personal note, I am grateful to Alan Berg because of his continuous support of the United Nations Subcommittee on Nutrition, the SCN. He is a frequent proponent of new initiatives to enlarge the scope of the SCN's activities and the Secretariat tries always to implement them.

He is going to speak to us on Sliding Towards Nutrition Malpractice. Time to Reconsider and Redeploy. I am certain that the title and his analysis will arouse our interest and stimulate our reaction.

6-24-1991

SLIDING TOWARD NUTRITION MALPRACTICE
Time to Reconsider and Redeploy

Lainie, Sidra, Kennan, Dr. Horwitz, Mr. Palmer, and friends -- including those who an hour from now may regard yourselves as former friends. Has it really been nearly four years already? It seems like only yesterday Martin Forman was stirring up trouble, creating what then seemed to be outrageous initiatives -- but that today are accepted as mainstream. Taking risks. Mobilizing resources. Getting things organized. Working half the night to shift those big piles from one side of his cluttered desk to the other, and in the process changing the face of international nutrition.

Dr. Forman's main legacy to us was that most rare and powerful gift -- a vision of what could be. How would he judge our performance toward realizing that vision? How would he react to what he would see today of the nutrition condition and the efforts of the international nutrition community to deal with it? How I believe he would react is what I'm going to talk about tonight.

Dr. Forman would be pleased, I know, to learn (from the World Development Report and UNDP's Human Development Report and similar recent publications) that much of the development community now takes the need for better nutrition more seriously than it did just four years ago, that it is now more widely understood not only as a consumption good, as welfare, but as an investment in human resources -- that it directly influences the productivity of the labor force and of the school force, and that it is emerging as a key factor in development. For the first time major nutrition initiatives are being called for about which development economists don't have to be convinced. To the contrary, economists are increasingly convinced that something has to be done about malnutrition -- that they can no longer, for instance, pull off structural adjustment without concern for the effects on nutrition.

He also would see that we know more than we did four years ago. There is a growing body of knowledge within our community, for instance a better understanding of the functional consequences of mild and moderate malnutrition -- reflecting research that he personally made possible.

But he also would see in the disadvantaged countries of the world a state of nutrition arithmetic not all that different from when he last tuned in. Dr. Horwitz gave us, at his Martin Forman Lecture two years ago, proof that malnutrition is still staggering, and in some places, particularly in Sub-Saharan Africa, the situation is getting worse.

Dr. Forman also would see that our international nutrition community, I'm embarrassed to say, has made a disappointingly small dent in improving that condition -- even though many of us have spent decades working to solve nutrition problems in developing countries and even though in the past 20 years something on the order of $1.6 billion in US government-sponsored research alone has been directed to these problems.

Of course some progress in the nutrition condition has been made in some places, but most improvement which occurred has not so much been because of us, but largely because of rising incomes in parts of Asia. True, some direct nutrition programs also have been successful. Iringa in Tanzania, Chile, Thailand, Tamil Nadu; it would be cruelly wrong to say nothing has been achieved. But how many other actions that improved nutrition of sizable populations can we point to in which the nutrition community has had a major role? We do, of course, have a great deal to show in scientific and technological advances, yes. But very little to show, if show means marked declines in malnutrition in the world as a result of our efforts.

Dr. Sommer, in describing his monumental work on vitamin A at last year's Martin Forman Lecture, told us that we had in hand the vitamin A technology to prevent the deaths of as many as 2 1/2 million children each year. And of course we are nowhere close to achieving that goal. Another micronutrient story -- iodine -- provides an even starker case, for the technology has been in hand for several decades. Ever since Dr. Ramalingaswami, the first Martin Forman lecturer, conducted his classic salt fortification study in the Kangra Valley of North India, we have known what had to be done. And yet, more than a quarter of a century later, we still have more than 200 hundred million people with goiter and probably several times that number with sub-clinical mild and moderate iodine deficiency -- and we know that even mild and moderate deficiency affects cognitive capacities.

And from work we had the opportunity to help initiate in what seems a lifetime ago, we know that salt also can be fortified with iron -- there are more than a billion cases of iron deficiency anemia in developing countries. And for some years already, the idea has been kicking around of fortifying salt with iron and iodine combined. That would make possible a major reduction of two important public health problems with one shake. What health minister wouldn't be attracted to this? But there is no one out there trying to make it happen.

Isn't it something of a scandal that we have done so little in applying our scientific knowledge? At the most recent meeting of the SCN, the UN's Sub-Committee on Nutrition, which encompasses the major UN and bilateral assistance agencies involved in nutrition, the comment was made that our performance on micronutrients should be regarded as a collective embarrassment. To understand precisely the

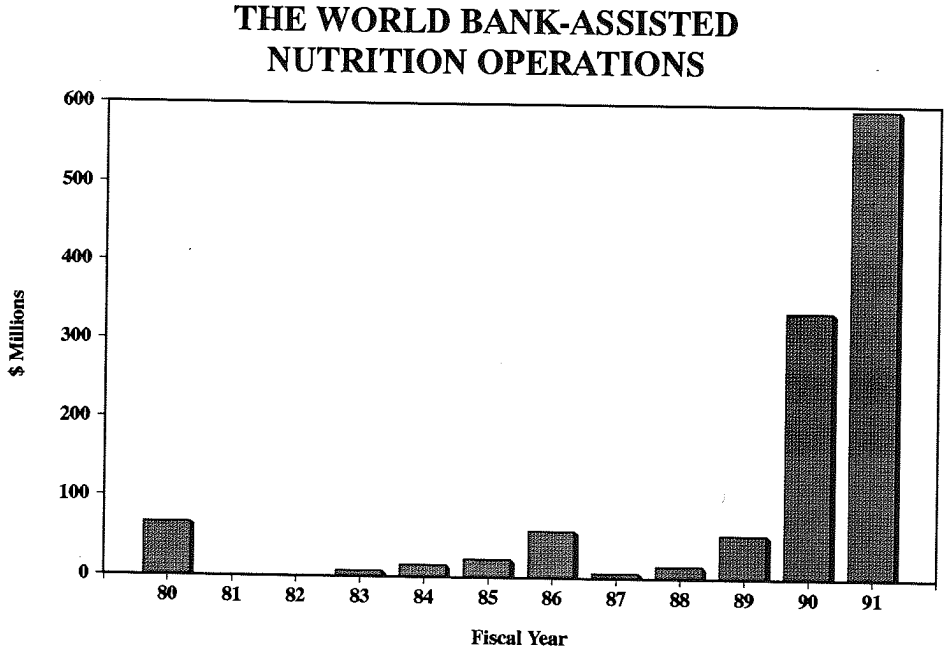
etiology and the consequences of the deficiency. To know who has it and where they are. To know exactly what needs to be done. To have in hand very low-cost technologies to do it. And still to be faced with upwards of 200 million iodine-deficient people in the developing countries. Nutrition malpractice. What else can we call such a performance? If there had been such a thing as nutrition malpractice insurance to compensate the victims of such neglect, a number of Third World countries probably could have paid off their foreign debts by now.

* * * *

What is the reason for this state of affairs? In preparing for tonight's assignment I had over 30 discussions about our failure to make larger dents in malnutrition. In this survey, I commonly heard three arguments to explain our apparent ineffectualness: First, there are insufficient resources for large-scale operations, to deal with the problems on the scale they need to be dealt with. Second, there is not the necessary political commitment in developing countries themselves. And third, when you get academics talking, you also hear that there is not enough outside money available to support their work. My contention tonight is that these are not the real problems at all.

For some time now there has been more operational money around for nutrition than there have been good projects to support. The interest is there. **(Figure 1)**

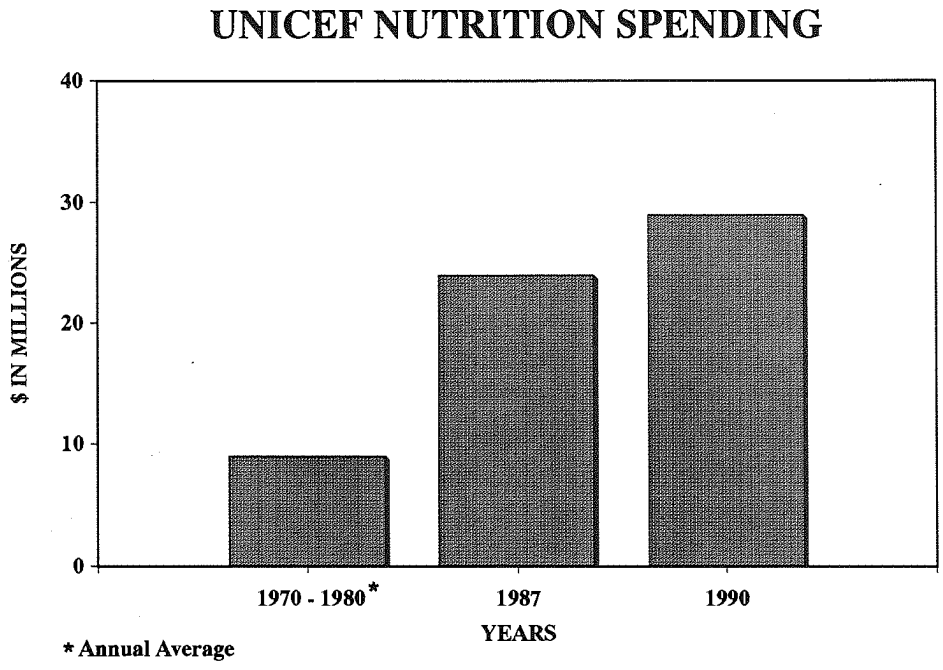
Figure 1



Here, for example, is a slide to show what is happening with World Bank-assisted nutrition operations. In the last three bars, which go up through the fiscal year ending next week, we see about $1 billion in nutrition investments, slightly over half of this to be financed by the Bank and most of the rest from the benefiting countries themselves. Planning for the approved projects you see here would in most cases have begun about three years earlier, when decisions were made to include them in the lending program. Projections over the next three years, taking account what already is in the lending program, are double this -- about $1.9 billion. (This slide does not, by the way, reflect the contributions to better nutrition sometimes now included in adjustment operations, which are almost impossible to quantify. But to give you a sense of magnitudes, the size of Venezuela's targeted food and nutrition programs went up more than seven-fold in conjunction with adjustment, from $102 million in 1989 to $761 million in 1991.)

UNICEF's expenditure for nutrition (**Figure 2**) has more than tripled from an average of $9 million from 1970-to-1980, to $24 million in 1987, to $29 million in 1990. This grossly understates the reality, because these figures don't reflect a major

Figure 2



reorientation to nutrition in much of UNICEF's other work. Nutrition now serves as an organizing principle for a substantial part of UNICEF's program for the '90s. Interest in nutrition is also growing in several bilateral assistance programs -- the German aid agency, GTZ, for instance, now screens all relevant projects for the nutrition effects -- and opportunities, and Canadian CIDA is providing new multi-million dollar support for micronutrient programs. And we are beginning to see increased flows of other country resources for nutrition in the aftermath of last year's Children's Summit. There are exceptions. USAID, being the most obvious -- and the most unfortunate, seems to have abandoned its historic leadership role of international nutrition efforts. But, overall, resources for nutrition -- even in an era of tight resources and compassion fatigue -- are clearly on an upsurge. We in nutrition no longer are trying to walk 'up' the 'down' escalator.

So the funding agencies are increasingly committed -- but what about the developing countries themselves? Is there political commitment? If we define political commitment to mean commitment to spending money and giving speeches in favor of feeding large numbers of people, the answer in many countries clearly is yes. So you say, "But a lot of that doesn't count. What is sometimes promoted in the name of better nutrition makes little real contribution to improved nutrition -- untargeted food subsidies in many countries are the best example of this." But even if we limit our definition to those governments that are genuinely interested in the malnutrition problem, that do things for purposes beyond pure political popularity, our experience shows there still is a good deal of commitment out there. Governments want to start large new programs. More NGOs are actively working. There is greater political interest in nutrition at the grass roots.

Of course political commitment comes in varying degrees and shapes and sizes, depending on the forms of governance and the other problems facing a country at any given time. But colleagues who deal regularly with planning ministries and finance ministries not uncommonly tell me after they return from trips that they were surprised not so much by the expected lack of interest in nutrition as how much more interest exists than they had expected.

So to blame our own lack of impact on insufficient political commitment is something of a cop out, just as it was in the case of inadequate operational resources. More often than not, a country's needs are not so much for more political commitment as for good program design and good management, along with better understandings of how to get the fruits of existing technologies into the hands and stomachs of those who need it. These are the issues.

Another perceived constraint in an entirely different category -- I raise it only because it came up invariably in discussions with university faculty -- was that their

main constraint to making more of a dent in the nutrition problem was the lack of outside funding. The phrase I heard repeatedly was "university starving." The tone in some of the discussions was almost one of a divine right of universities to receive such money. Times are tough, we all know, and universities do need more money. But I would argue that the level of funding is not the only issue to consider. Funding levels have been generous in the past. In the 1970s, USAID had the so-called 211d grant that was used to strengthen university capacity to contribute to the development effort. In nutrition, one after another of those grants led to disappointment. In several cases the aim of the program was perverted and the money used to do things the universities were going to do anyway -- rather than to add a policy and programmatic dimension to nutrition along the lines that had been agreed upon. And remember we also are talking of US government-funded research over the years on the order of $1.6 billion. How was that money spent? How would we grade those results? It would be unfair to over-generalize -- clearly, there are exceptions. But, for the academic community as a whole, the report card would not be a pretty one. Maybe OK marks in some basic nutrition science work, but clearly low marks, I'm afraid, in the applied.

This is not to suggest by any means that the academic community is the only culprit here. To the contrary. The operational nutrition community is also responsible for a good part of the malpractice -- for opportunities lost, for efforts misdirected, for local needs and preferences ignored. The blame lies in both directions. What's more, the operational community and the academic community have not learned, in all this time, to work very well together.

So -- if the problem is not lack of operational resources, if the problem is not political commitment, and if the problem is not simply the amount of funding available for the universities, why haven't we made more of a dent in malnutrition? Could the problem just possibly be how we go about trying to solve the problem? "We have met the enemy," Pogo used to say, "and he is us."

* * * *

How could we be the enemy? We all meant well -- academics and operations people alike. But we've meant well for a long time now and with sizable resources and we have so little to show for it.

I see two main problems. We have been emphasizing the wrong research issues and we have been negligent in preparing nutritionists to work operationally in this field. In my remarks tonight, I'll be looking for the roots of these problems in both the academic and operational nutrition communities. And try to offer a few thoughts of what might be done.

First, on research. If we think of nutrition knowledge as arising from a chain of research questions that must be addressed to bring about large-scale improvements in nutrition, we might divide the work into several reasonably distinct categories. (**Figure 3**) (This categorization is necessarily arbitrary at times because some research of course straddles categories but, I believe, will make the point.)

To illustrate, let's continue with the example of vitamin A deficiency. Here, under 'why', falls research into why it occurs and why bother with it -- biomedical pathways, its socioeconomic determinants and its consequences. Next is work to determine 'who' the groups vulnerable to vitamin A deficiency are, and 'where' they are. The 'what' category covers research into the size and frequency of dosages needed to prevent vitamin A deficiency and the mechanisms to deliver it. The 'how' work gets into the organization and management questions of vitamin A delivery, the perceptions of the families of the intended recipients and figuring out ways to be responsive to those perceptions, the effects of public information efforts, program evaluations, and so on.

What is the relative importance assigned to these categories? In the mid-1970s we had an opportunity, in connection with work on the World Food and Nutrition

Figure 3

CATEGORIES OF INTERNATIONAL NUTRITION RESEARCH

Study for the National Academy of Sciences, to look at the amount of funding by all US government agencies for international nutrition research and how those monies were being used. At that time (**Figure 4**) some 67 percent was directed to the 'why' question; about 20 percent was spent for the 'who' and 'where' questions, mostly survey work; about 11 percent went to the 'what to do about it' question, and less than two percent to the 'how to do it' question. Or, to present it another way... (**Figure 5**)

Although it is impossible to pin down with any precision what that distribution looks like today -- we took nearly two months trying -- our sense (from the budgets we've seen and discussions with budget officers of the several agencies involved) is that the shape of the slices of the pie has hardly changed over the years, even though the state of nutrition knowledge in the world has changed. Dramatically.

We know enormously more now than we did a decade and two decades ago about the causes and the consequences of malnutrition. Do we know 'who' and 'where' the vulnerable groups are? Expensive nutrition status surveys have become so common over the years that people can rightly ask whether we now are getting any kind of return at all on an investment in more surveys, at least as they have traditionally been undertaken -- often measuring for the sake of measuring.

We also already now know a great deal of 'what to do' about the problem in most circumstances, albeit not in all. A number of techniques and technologies with the potential for sizable impact have been developed and are all part of our arsenal.

Yet almost nobody seems to be caring about unlocking the 'how' question to reach the payoff. Even though the needs have changed markedly, we continue to do what we know how to do. (**Figure 6**) Remarkably little intellectual attention has been given to getting from here (left) to there (right). It's almost as if this area of work represents a chasm between all we have learned and The Promised Land. Its almost as if it is much more satisfying to do basic research than to cause something basic to happen. So much knowledge build up. So little benefit.

But unless we give a lot more attention to the 'how' question (and somewhat more to the 'what to do' question, particularly to address the rural problem in the Sahel and other impoverished rural areas of Sub-Saharan Africa), the value of all other research is almost nil. In an economic sense (**Figure 7**), the return, say, in terms of lives saved for additional work at the left side of the chain is low and the potential benefits at the right are very high. (And if I were king of the world and responsible for allocation of all research monies for international nutrition, the line represents how I would do it.) Fifteen and twenty years ago, when we knew a lot less than we now know, the potential benefits were higher on the left and we had to work there

Figure 4

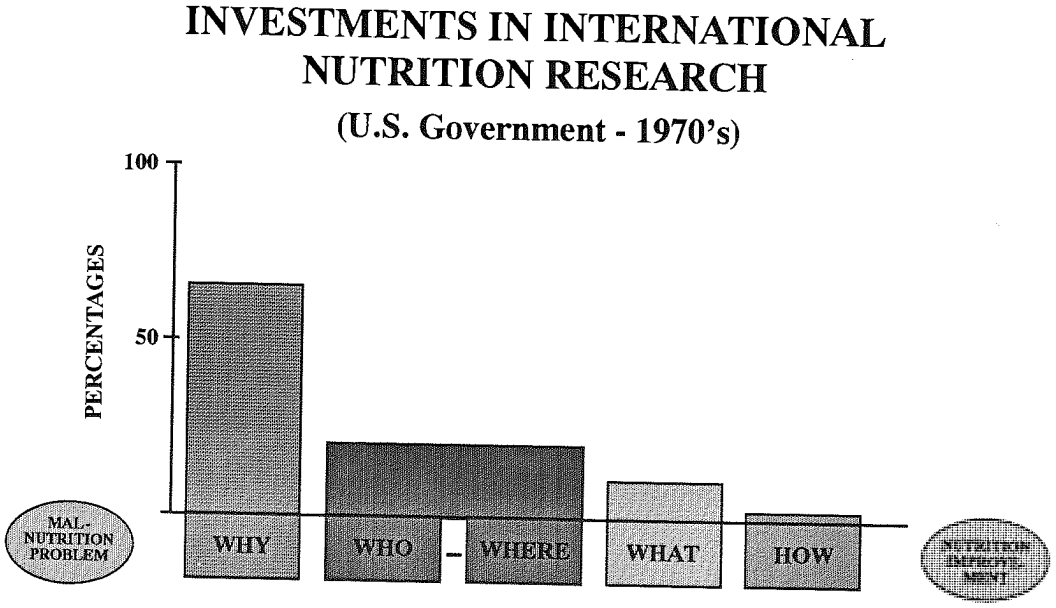


Figure 5

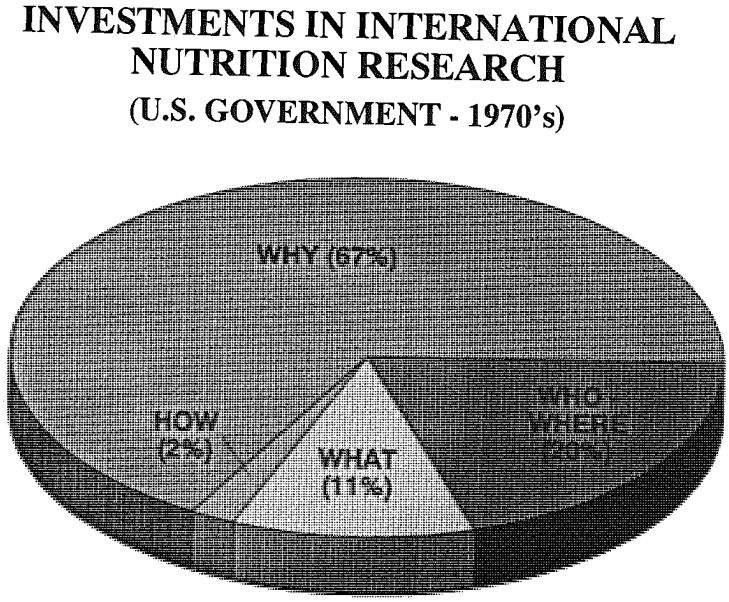


Figure 6

CATEGORIES OF INTERNATIONAL NUTRITION RESEARCH

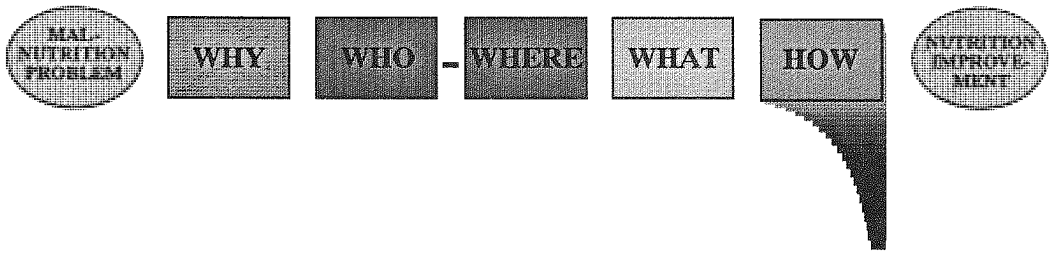
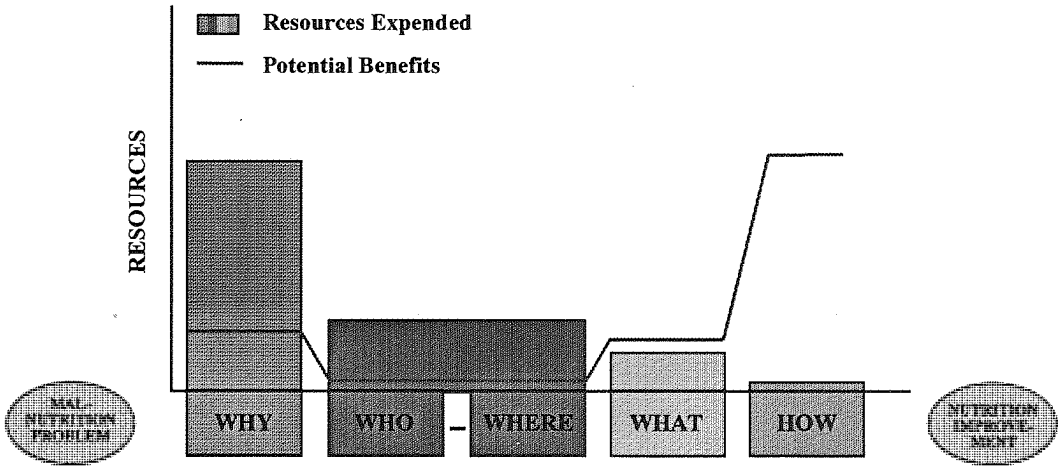


Figure 7

RETURNS TO INVESTMENT IN INTERNATIONAL NUTRITION RESEARCH



first. But today, even though the warehouses already are filled to the rafters with rich and potentially useful research papers whose findings are not being implemented, we continue to work on the 'why' question. It would seem that now feeding a fortified cereal to rats one more time isn't likely to tell us a lot that is new. Meanwhile checking out the reasons, say, a particular fortified food isn't pushing its way through the knots in the distribution system, how it is perceived by the people who are supposed to eat it, how it is allocated within a family, and what it will take to make a program effective -- would seem to have enormously more value. So why aren't we doing more of this?

* * * *

The second main problem, as I see it, is that we are lacking in people appropriately trained and experienced to design and manage sometimes multi-million dollar nutrition policies and programs and projects. I mentioned earlier that today there is more money available for nutrition than there are good projects. Within my own institution, if we had 20 more solid country proposals that met our level of specificity and other standards, I am quite certain that at least 18 of these would be financed. This is not unique; I hear the same from counterparts in other agencies. The climate is favorable. There is a receptive market for good proposals. But where are those proposals and who has the capacity to prepare them? And, once projects are financed, who has the capacity to manage them?

For many years the nutritionists have challenged the broader development community to take nutrition seriously. Now it has and, guess what, we are not able to provide the people to meet the demand. The World Bank over the last year has added half a dozen new nutrition staff and I expect this number to grow. (Much of the work until now has been by staff with no nutrition background. They know planning and management, but not much about nutrition. We need people who know both.) UNICEF currently is recruiting 43 new nutrition-oriented staff. The Inter-American Development Bank is recruiting in nutrition for the first time. Hardly a week goes by that I don't get a request, either from within the Bank or outside, for names and CVs of people trained or experienced for operational jobs or consultancies in nutrition. But, at least speaking for the Bank, trying to identify qualified people to do this work has been extremely difficult. If we want one more survey, we can easily find the people. If we want to take one more crack at formulating a more nutritious weaning food, no problem. But if we want better understandings of the nuts and bolts of a program and the cultural setting within which it is being offered so we can figure out how to make it work better, where are the people? The population field has such people. A population student in Johns Hopkins takes courses called Policies and Programs, Family Planning Administration: Evaluation, Family Planning Communication, and Economics of Population

and its Planning. Why is it that Hopkins and Michigan and North Carolina are producing people to do nuts and bolts in population programs, focusing on very practical things, and are not producing them in nutrition?

What are most nutrition graduate students equipped to do when they finish school? Teach and do fairly narrow research. Rarely are doctoral dissertations written on the basis of broad-based applied research. A count was made of all dissertation titles in international applied nutrition from 1970 to 1990. There were never that many, but it is worth noting they declined from five percent of all nutrition dissertations in the early '70s to close to zero percent now.

In preparing for tonight, I took a look at the dozen-or-so leading universities that were training students for international nutrition -- including some applied work -- 15 years ago. Two of the strongest programs then have either disappeared (in the case of MIT) or virtually disappeared (in the case of Harvard). Of the others, the program size in seven of the universities has withered, in several cases withered substantially, and only two have increased their commitment in this area.

Reports I received indicate that enrollment in international nutrition is down; enrollment in nutrition generally is down. Down even more is the number of applicants. Cornell this year had 140 applications for nutrition, compared to annual requests a decade ago in the 300s. Tufts also reports the applicant-to-acceptance ratio has dropped from accepting two out of five applicants in 1985, to accepting two out of three in 1990. So even though student enrollment levels can in some instances be maintained, the size of the pool from which to select those students is much smaller -- and all this implies.

One can only speculate, but it is not inconceivable that one of the explanations for this decline in student interest is the matter of relevance. Not too many years ago I participated on a small panel to review the nutrition department of one of our more prestigious ivy league universities. What struck me most in that assignment was the lack of fit between the interests and expectations of the students I encountered and the interests and the work of the faculty. Although the descriptions in the course catalog appeared relevant, the teaching commonly reflected the remarkably narrow interest of this or that particular professor. The foreign nutrition students were surveyed -- and a number of them were quoted as proposing that the university be sued for false advertising. Here (**Figure 8**) is the laudable statement of goals from the current course bulletin of another of our major East Coast universities. But to plumb a little deeper finds that only one obviously applied nutrition course is offered by the Department each year. An examination of course catalogs of six other prominent universities found similar situations.

Figure 8

"The major objective... is the development of logical approaches for the prevention of malnutrition in less developed countries... faculty from a variety of disciplinary backgrounds... work collaboratively on divisional teaching, research, and service activities".

Of course universities are not all the same. Some of them give more attention to certain of the concerns I raise than others and within a given university some faculty are much more sensitive to these needs than others. But, overall, the problem of relevance is a real one. By and large our institutions of higher learning have not equipped their students for the broad role of designing and managing nutrition efforts. How different the state of nutrition might have been in the world had they done so.

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So what is the reason for this unfortunate situation -- of misdirected research and the lack of appropriately trained people? There probably are several. The academic nutrition community (and many of my comments are focussed on that community because Dr. Forman had such a great interest in what the universities might contribute, and made such substantial effort to involve them) has not bought in at all adequately to addressing the important 'how' question -- either in its research or its training. This is partly because the academic culture and reward system leads in other directions.

Why is it that almost nobody wants to deal with applied research? This partly flows from the way research is defines. The director of one of the largest university nutri-

tion programs, for example, reflects the view of many by describing research as a process that produces knowledge that is universally applicable. This rules out sizable portions of the needs described earlier. The knowledge produced by answers to the 'how' question often is culture-or site-specific -- applying to one program at one place at one time. (This is not to say, of course, that applied research can't sometimes produce approaches or principles with broad applicability.)

It is also often harder to measure things precisely when dealing with the 'how' question, particularly since part of the nutrition problem is poverty, alienation, disorientation, inability to cope. It isn't that it can't be done but you get forced into the economic and political and social and administrative realms. This makes it harder to write a good academic paper about it and this leads to another academic bugaboo: the pressure to publish. This has become a widespread infectious disease that already has spread from here to developing countries. Applied work just doesn't carry as much weight as "pure" research when it comes time to getting articles published or winning tenure.

This lack of responsiveness to the main questions facing the nutrition community is sometimes justified under the banner of academic freedom. The head of one university nutrition department made very clear to me that universities first and foremost have the responsibility to give faculty members the freedom to do any research they want to do -- in any way that they want to do it. But academic freedom may have allowed people to piddle in areas that are no longer very pertinent to the main problems of the nutritionally needy. This kind of research <u>is</u> on universal topics. But generally is universally ignored. One need only to look at the nature of articles in professional journals and the kind of intellectual fencing going on to wonder about their relevance for malnourished children. Is this really academic freedom, or just another example of nutrition malpractice?

* * * *

And no matter how many research topics are driven by academic freedom, they are surely also driven by research grants. Money. An old student of mine, Dr. Cutberto Garza (now the Director of Nutrition Sciences at Cornell), once proposed that Baylor University change the wording on its coat of arms -- from "education, research and service" to read "if you've got the money, baby, we've got the time."

So where <u>is</u> the money these days? There now is a bigger nutrition market out there, the domestic nutrition market of the affluent. (**Figure 9**) Although total resources for nutrition research have not fallen, the portion of the research dollar going into domestic nutrition issues affecting the well-off is going up, relative to international issues affecting the poor. Unlike 20 years ago, there is today much more money to

study ways to reduce fat in the diets of affluent adult males than to study ways to get more fat into the diets of children who don't have enough fat in the first place.

(**Figure 10**) Another indicator of this is the percentage of articles devoted to developing country problems in nutrition's premiere research journal. As you can see, less than half as much attention is being given today as 15 and 20 years ago. (**Figure 11**) All the more reason that most of those financial resources that still are available to solve international nutrition problems have to be pushed over here to the right.

Unlike international work, the benefit curve for dealing with the domestic nutrition problems would still be heavily concentrated on the left. (**Figure 12**) We haven't looked at the expenditure curve for domestic work -- let us assume it is the same as international. The point is that those in this game, instead of shifting their work from basic to more applied (**Figure 13**), have shifted from international to domestic (**Figure 14**). It is not an accident that a Zak Sabry, for instance, an international nutritionist who for years headed Nutrition and Food Policy at FAO, now spends most of his time in Berkeley working on a domestic nutrition and heart disease study handsomely funded by the National Heart, Blood and Lung Institute at NIH. The Cancer Institute now funds even more nutrition work. I am not questioning the importance of such research, but do want to point out that in a way the international applied nutrition research needs are being held hostage by these better funded domestic concerns.

Much of the problem with the academic community's approach to nutrition is our own fault, those of us in operating agencies. We expected things of the academic portion of the nutrition community we shouldn't have expected and have been, therefore, both unrealistic and unfair. Because of the very considerable contributions that those in the universities have made to nutrition, particularly in the early years, we look to them for leadership. This academic nutrition community, after all, generated the initial interest that brought the problem of malnutrition to the attention of the world, and it has been slogging away over the years trying to better understand the nature of the problem and its consequences. These are the people who developed and organized the nutrition institutes around the world and prompted the formation of the old Protein Advisory Group, which evolved into the SCN. And they have made important contributions in a hundred other ways. So it is natural that we turn to them.

But, as a result, nutrition finds itself in the perhaps unique situation in which those who have dominated the direction of the field over the years have biomedical research as their main orientation. To that group, actual policies and programs are appendages of that research, rather than the other way around. And this community generally has neither the professional disposition nor the inclination to unravel

Figure 9

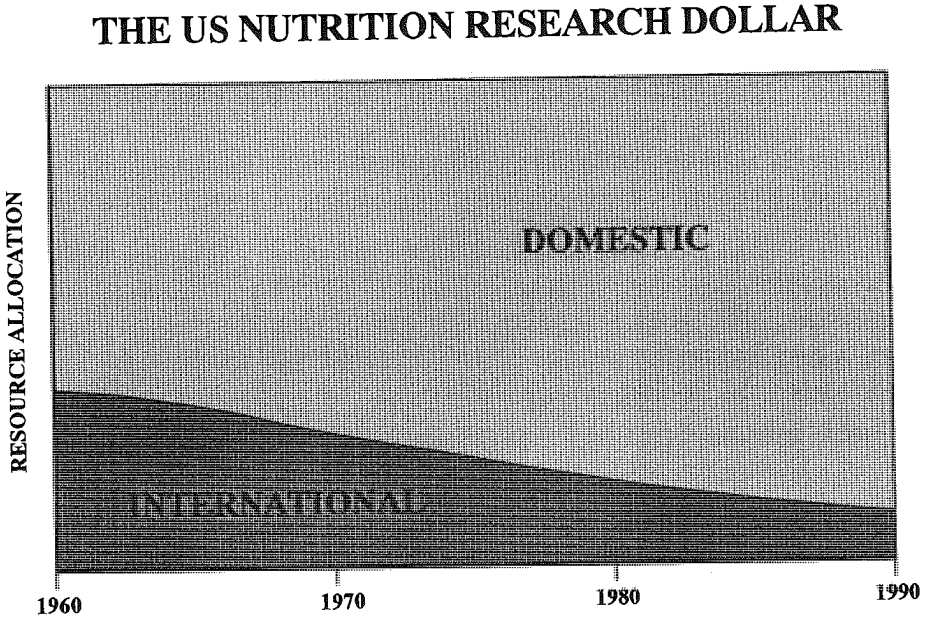


Figure 10

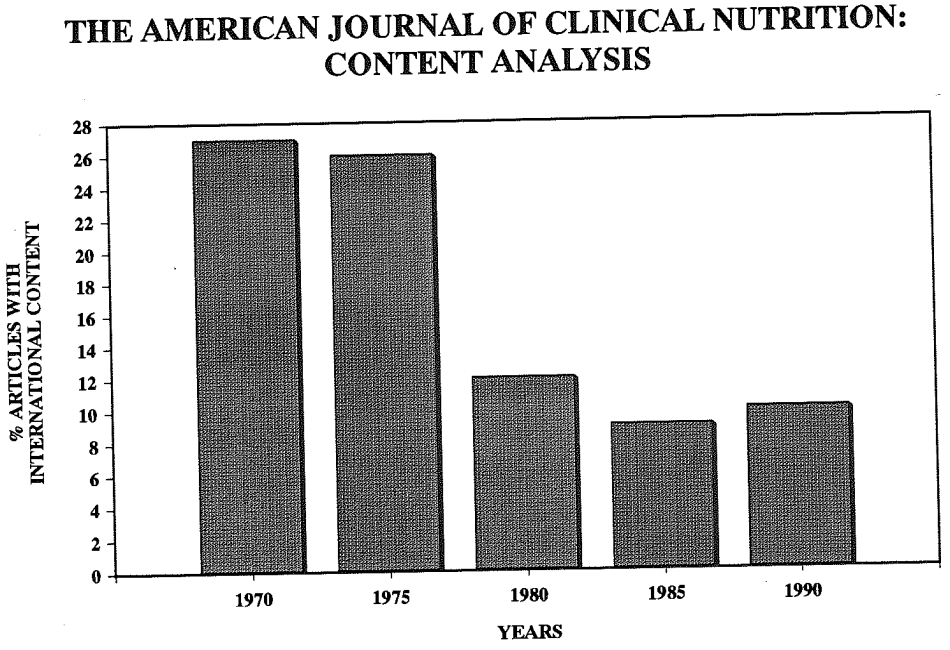


Figure 11

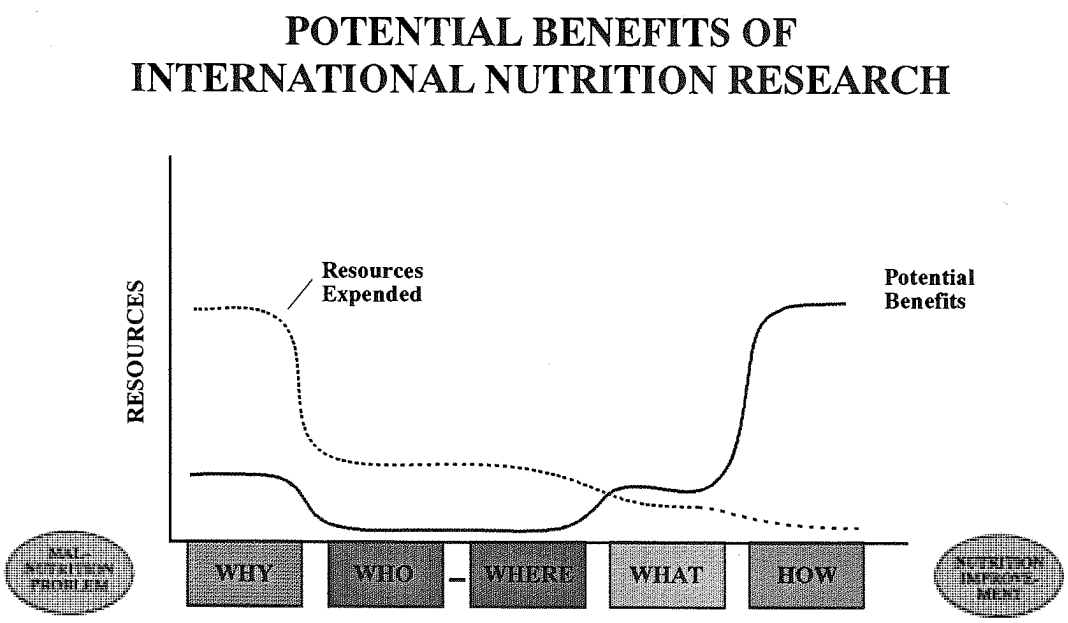


Figure 12

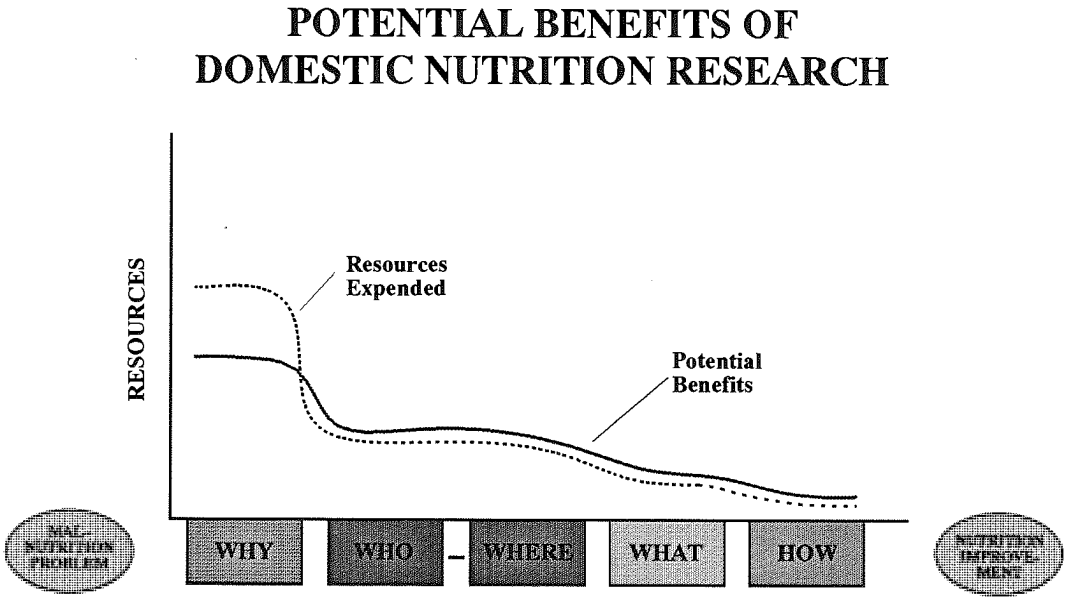


Figure 13

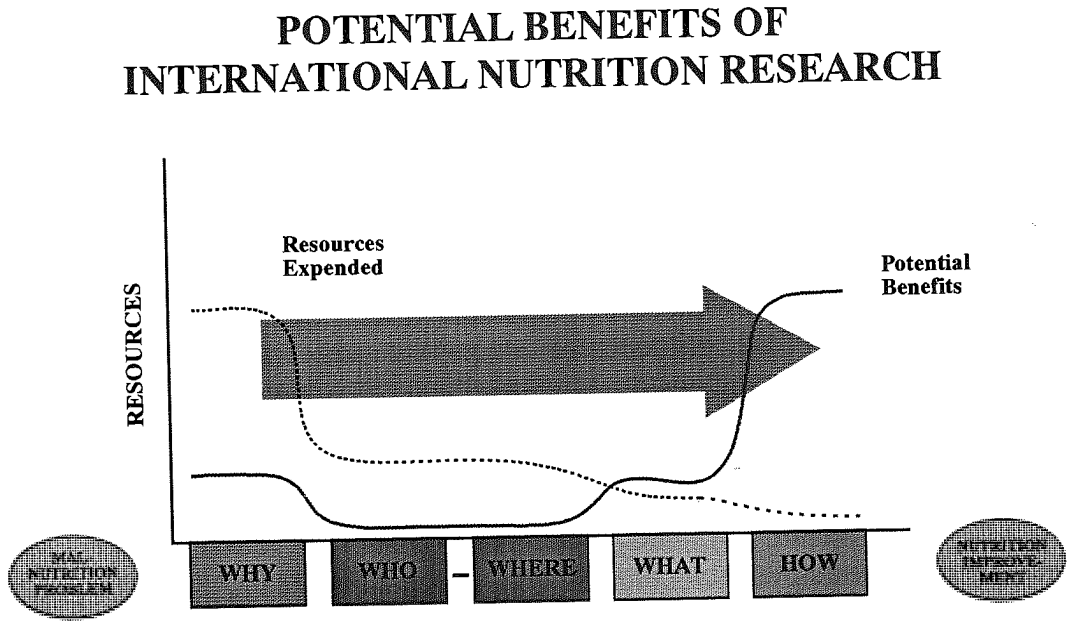
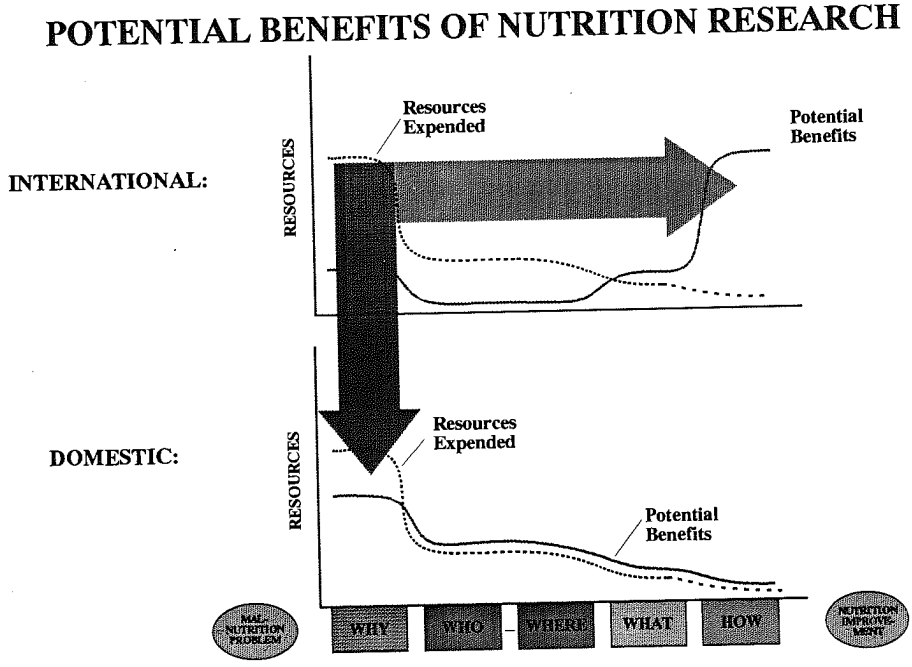


Figure 14



the kinds of constraints that are addressed by policy and project-oriented research. To make clear, my intention here is not to burn down the universities, but to try to encourage them to be more relevant. It would not be fair -- and clearly not realistic -- to expect all those working on nutrition in universities suddenly to address 'how' problems. But they can at least make the climate more hospitable to that small band of dedicated academics who now, under very difficult circumstances, want to address applied problems. And they can make the climate favorable to expanding that band.

I mentioned earlier that the blame for neglecting applied work is not limited to the academic community. Those of us working in policy and operations also seldom make a systematic effort to see how and what difference a policy or a technique or a product makes, if any, to meet a specified need. Practitioners themselves generally give remarkably little attention to project evaluations, for instance. A World Bank colleague, Philip Musgrove, recently analyzed 97 child feeding programs in Latin America. Only 10 of these had any kind of evaluation and only three were evaluated halfway decently. There are two main reasons for this, he reports. The first is humanitarian. There are a lot of people who have the attitude that they are doing God's work and how can it not be paying off. Common sense tells you that if you give food to hungry children they will be better off.

The second reason is bureaucratic. "Look, I've got a program to run here," a manager might say. "The minister gave me a million dollars and moving the food is what I get paid to do. My head is on the block for moving the food and the money."

These are two very different kinds of obstacles, but they have identical impact on whether things get done right. They are both natural, too. You can sympathize with the harassed missionary trying to feed hungry little children and not spending a peso of his limited funds on evaluation. And the harassed bureaucrat, who never has enough money and is trying to hold his staff together on low pay. What's more, if he did take the trouble to evaluate, there is risk that what is assumed to be an ok effort may turn out not to be so ok, and this is more likely to make him look bad than good.

There are people who defend food coupons to the death and people who think they're the work of the devil -- but after coupons are given out, hardly anybody ever checks on what happens. And the same goes for the milk being given out and the bags of flour being given out. We hear over and over again that if you give a kilo of food to a family and you tell the family that it is for the two year old, the two year old may not get more than 200 or 300 grams of it. But nobody knows for sure what determines whether she gets 50 or 100 or 500 grams. So what do we do? We make

assumptions about dilution and we plan rations on that basis. But we don't have a clue whether we are right or not. Yet whether the child actually gets half of the ration or a tenth of the ration may make the difference between life and death.

But then stop and consider why the Iringa and Tamil Nadu projects have been successful? Because operations research, including evaluations, were conducted at each step of the way. In the first six years in Tamil Nadu the Government undertook or sponsored through local universities and research groups 37 discreet pieces of applied research. Findings from many of these studies led to mid-course corrections of the program. There was a look, for example, into the causes of relapse into malnutrition of previously recovered children to find if there were predictable patterns. There was a study of the causes of absenteeism from growth monitoring sessions. There was a study of the effectiveness of different growth cards, finally settling on the bubble chart. There was a study of the time-frame necessary for the build-up to debilitating levels of worm loads in children. This had important cost-benefit implications, with the cost difference between deworming twice a year or four times a year obviously being 100 percent. And so on. The Government set up a separate fund at the outset for the studies and 2.1 percent of this $81 million nutrition project was earmarked for monitoring and evaluation.

So there needs to be a marriage of research and operations. Understanding the nutrition behavior in a given setting, through a systematic search, is important knowledge. And if it is not academically acceptable, then those academic norms of acceptability need some hard reexamination. Mr. E.J.R. Heyward, one of the wisest men in nutrition (for many years he was the Deputy Executive Director of UNICEF), said when I queried him in conjunction with this talk: "I think that the results of the nutrition profession are disappointing because, although the science has made good progress, the context for its application has been neglected. Improving the state of nutrition means changing peoples' behavior. Who," he asks, "studies their perceptions and their constraints -- not in the abstract but in the context of launching a new nutrition program?"

What often is most needed are behavioral research studies of the social marketing type, including not just the behavior of clients of services, but the behavior of the deliverers of those services as well. Pilot and demonstration activities, with strong evaluation components. Quasi experimental programs. Participatory research; we need to pay a lot more attention to helping communities identify their own solutions. More and more we appreciate the importance of local community involvement in dealing with the problem. Whatever we call it, we need to have a better understanding of how things work and reasons they don't work.

(Figure 10) Of course, none of what I have said so far should be interpreted as suggesting that all the necessary research answers on the left side of our chain are in hand so we can close up that shop and go home. (Although I must confess the notion of calling for a cessation on all new basic research starts until we know better how to apply what we already have is tempting.) But the balance is all screwed up. One can't help but get a sense that our research is skewed and that the potential benefits do not justify our current expenditure patterns on research.

Let's imagine some large firm which is able to sell nutrition improvement as an output and the government says it is willing to pay for each child saved from malnutrition. The CEO would take a look at this situation and say "All this money being spent at this end where the potential returns are small, and so little at this end where they are so great -- this is crazy. We will be filing for chapter 11 bankruptcy in no time. We either have to let a lot of people in the labs go or turn them into field workers and get them out there where the possibility of realizing substantial returns is so great." People already in the firm and those students in universities hoping to get jobs with the firm had better start thinking how they might be able to fit in at this applied end of the spectrum. It would be time for some serious stock taking.

Of course, there's no such company and I'm not the CEO, but I don't think I'm wrong to insist that we in the nutrition community will ultimately be measured by our return on investment. It's time for some serious stock taking.

* * * *

The prescription. First on training and the questions universities should be asking themselves: What kinds of policies and programs are necessary to alleviate malnutrition and what knowledge and skills are necessary to make that happen? Has our training equipped people who want to build careers of performing service in this area? What will it take to provide them with what is needed to design and manage and evaluate such programs? Is our faculty capable of guiding a student on implementation measures for a growth monitoring and growth promotion program -- as opposed, say, to just advising on basic science?

Then the hard decisions need to be made on how to use any new staff resources, and the harder decisions on how to reallocate existing resources. In short, what I am proposing is not just a stock taking, but a redeployment.

What we need are students trained in economics and administration and logistics and planning and budgeting and the dozen other necessary skills in addition to

nutrition. People who will feel at home in both the scientific and bureaucratic worlds. People who can do nuts and bolts work in getting projects going in specific country situations month after month. In short, what we need are nutrition engineers. Webster defines an engineer as "a person who carries through an enterprise and brings about a result." Unlike many other fields, nutrition doesn't have the equivalent of engineers -- we have the equivalent of physicists, but not of engineers -- and we need them. Badly. We need to stop doing physics, stop inventing and reinventing wheels -- and start putting wheels on the wagon already.

How could academic programs be changed to produce nutrition engineers? Several different avenues have been suggested in discussions related to tonight's talk -- from revamping university nutrition departments by encouraging financial support to innovative academic programs that are willing to make a commitment along the lines described here, to investing in management and public policy schools and encouraging the development of a nutrition stream there.

Another option, a preferred option, is to resuscitate the concept of a special integrated program, such as that MIT tried some years ago. Nutrition normally cuts across university departments, with people going off in all directions -- a little bit of nutrition in food science, a little bit in biochemistry, a little bit in political science, a little bit in agriculture, and so on. MIT's program tried to deal with the issue in a cohesive way, providing a focal point for nutrition and looking at the totality of the problem. It had case studies in the style of Harvard Business School. It addressed implementation and management issues. It saw things all the way to the end. It was heavy on evaluation.

For a while that program included everything from Ph.Ds for those wanting to work in nutrition planning to short courses for mid-career practitioners. But the program ran head-on against the university culture and reward system -- and lost. The program was trying to do academically well in an academic setting something that was seen as at least partly non-academic. For a while it did work, but eventually the program faded away. Today former students of that program are now in important nutrition positions around the world -- the Director of UNICEF in Europe, a key nutritionist at IFPRI, the head of nutrition at UNESCO, a valued colleague in nutrition at the World Bank, as well as principal nutritionists working in a number of governments.

Maybe it was simply an idea before its time. If so, maybe the right time is now to recapture that notion, and develop institutes dedicated to applied work and to training nutrition engineers. (I'm not here to long for the good old days; I'm here to encourage laying the groundwork for better ones ahead by taking lessons from that previous experience to build something new and appropriate for our times.) I know

if I were in a foundation looking -- as at least one and possibly two foundations now are looking -- for an entry point into international nutrition, I would try to select a neglected area of work, critical for much else that has been done to have a substantial impact. And, for this, I would conclude that funding such a center or institute would be an attractive option.

Any university that wished to pursue the directions being laid out here would need to follow several basic tenets. First, obviously, is a greater emphasis on applied subjects for research and training, including non-degree as well as degree programs. If universities are not going to do location-specific research, at least they should teach how to do location-specific empirical analysis and illustrate this with examples of real research. (Students need to have a basic conceptual analytic understanding so the tools can be applied at the country level to address the 'how'.) Tufts and Cornell, both of which picked up elements of the MIT concept, already are doing much of this. Second, whatever is done needs to incorporate research and training and the analysis and evaluation of operations into the same feedback loop. Third, there is need for more interaction with local managers and local institutions, between universities and programs in the field -- recognizing that some things can't be learned in the classroom. So some of the training must take place in the organic setting. Efforts ought to be made to pair up First World with Third World universities. For example a student might spend two years in Berkeley and another two years in, say, Baroda.

Whatever is done in the university, the academic nutrition community will have to face up to some pretty basic values if it is going to make more of a contribution in this area. Perhaps the number of professional journal articles is not so important after all. Perhaps we need to forget about the third and fourth decimal points on old issues and to examine the whole numbers of the new issues that matter. And perhaps the prevailing values with regard to requirements for faculty positions have to be reconsidered. To train nutrition engineers will mean attracting faculty who themselves are program designers and managers and have kicked around much of their careers in developing countries. Most such folks do not have conventional academic qualifications. To make clear, this is not to suggest that we compromise standards. Only that we change their order of priority, with the primary standard being how much difference it will make.

* * * *

Then there is the research need. Of course, I'm not a complete dreamer about how much academic culture is likely to change. Even if universities are willing to set up applied-oriented training programs, it is unlikely that they will be able adequately and efficiently to address the research needs laid out here. Experience has taught

that operating agencies should not try to turn universities into instruments to satisfy their own nutrition research requirements, to try to make the universities something that they don't want to be. The universities legitimately have a role and objectives that are different from those of operating agencies. So instead of converting universities into something they aren't, perhaps the nutrition community should give more attention to creating another kind of institution.

The experience of USAID in population may be instructive. In the mid-1970s the considerable sums that agency was giving universities to study population growth was leading to very little in the way of change. The decision was made that more resources should be used to mount pilot and demonstration family planning activities that were large enough -- with careful evaluation components running along side -- that the results could be illustrative if the programs were scaled up to a national level. To get what it wanted, USAID turned to the Population Council and other private contractors not bound by the academic value system. This all had tremendous payoff; governments in Bangladesh, Thailand, Taiwan, Egypt and Kenya, for example, looked at what happened in those small quasi-government settings and used them as the basis for what are now national programs.

The Population Council is a kind of halfway house between the university and the consulting firm. It is different from the university in that it is problem-driven rather than academic culture-driven and it is unlike the consulting firm which is essentially client-driven. The Council exists specifically to find ways to solve a problem, in this case the population problem. And it is flexible enough and has an agenda broad enough to permit it to attempt to understand the many dimensions of the problem. So it has, in addition to an operational interest, a research interest (mostly operations research; it is very much involved in the field testing of ideas) and knowledge interest. Because it is endowed by foundations and has its own independent international Board and its own funds, it is capable of setting its own agenda. In conjunction with this lecture I floated with a director of one of the major foundations the idea of something comparable for nutrition, just to see if it was worth raising tonight. I am pleased to report an unexpectedly positive reception and encouragement.

A main purpose of both these proposed entities -- a university-based institute to produce nutrition engineers and, for the 'how' research, a nutrition equivalent of The Population Council -- would be to improve capacity <u>within</u> developing countries. This needs to be a prime objective of all we do -- to help strengthen those who will be the mainstay in running the programs, and to help develop or expand local research and training institutions to incorporate more of a policy and programmatic orientation in their work.

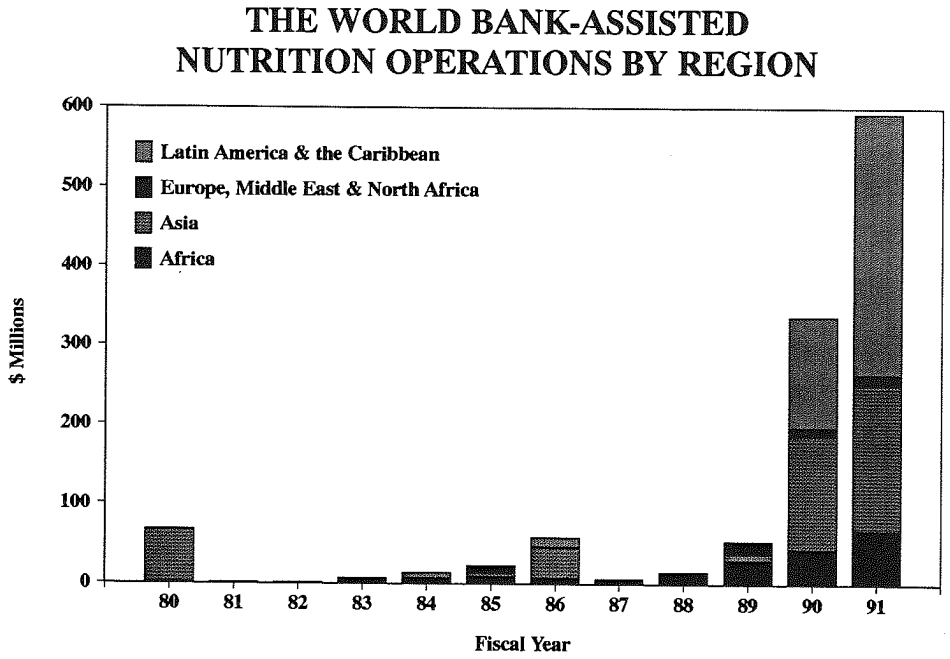
* * * *

What the nutrition community has learned in a few places -- like Iringa and Tamil Nadu -- is opening up some large-scale operational opportunities. Relative to earlier available resources this may look like a lot, but let me make two points on this. First, compared to need we still have barely scratched the surface. It is important to note (**Figure 15**) that the region where need is greatest, Sub-Saharan Africa, is receiving much less from the World Bank for nutrition than two of three other regions. For many countries there we just don't have the answers.

And while international funding agencies are spending an increased amount of money, in some of the funded activities we know we are doing it right, in some cases perhaps doing it right but inefficiently and would have done better had we had better 'how' answers and better equipped people, and in other cases we probably are making mistakes. But we hope we will at least learn in the process.

I mentioned at the beginning that Dr. Forman's main legacy to us was a vision of what could be. What is needed now: leadership and institutional underpinnings required to implement it -- step by step, location by location, year by year, initiative by initiative. I believe Dr. Forman would have said a first step toward achieving this will be to corral intellectual energies and try to recapture the excitement of earlier

Figure 15



years. To convince the nutrition community that applied work on the 'how' end of the chain is not as intellectually unsatifying as some think it is. What could be more satisfying than addressing the most important constraints to making a serious dent in malnutrition?

And he probably would have said that we have to put into action what we already know, and then take a lot of measurements to see if, in fact, we are doing it right. And that we need folks capable of designing and managing all of that. Bridge metaphors are greatly overdone but if we talk about a chasm -- and everyone standing at the edge of this gorge of ignorance and looking down, suffering from vertigo -- the next step is to talk about building a bridge. For many countries, including those which need help the most, it is the only way we're ever going to reach the other side. The nutrition surveyors have already done their work. There is a compelling need for many more nutrition engineers to build the bridge.

This clearly is the way we have to go. To continue business as usual is an abrogation of social responsibility. It took us 25 years to get to the point that better nutrition is accepted in development circles as being important and there is a willingness to do something major about it. This is no longer a pipe dream. Is it going to take another 25 years for us to make that happen? Knowing what we now know, to continue business as usual would be the ultimate case of nutrition malpractice -- of which we all would be guilty.

So my plea tonight is that we recognize the need for much more operations-oriented research and training, that we take the bold steps necessary to redeploy the resources that will be needed to bring this about and that we consider and move on creating the kinds of new research and training institutions required. What gave the international nutrition community its strength in earlier years -- what Martin Forman embodied -- was the resolve and passion and focus on what really matters. We can recapture these qualities, and we must do so if we are to save many lives. If we are to save ourselves.

I appreciate that, for many of you, several of my points tonight may have burned holes in your patience. But I hope that all of you -- from the universities, from USAID and from the World Bank, and from U.S. Congressional committees, from non-governmental organizations, from foundations and from others -- will think about these points and talk with each other and with your colleagues about them. I think Dr. Forman would approve. There is much work to be done.

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