

# *War on Hunger*

*A Report from The Agency for International Development*



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## **IN THIS ISSUE:**

Development—the Business of Agribusiness, by Henry J. Heinz II .....	1
Self-Help and Food for Freedom, by Jerry E. Rosenthal .....	3
An Overview of Population Policies and Programs in Developing Countries, Part II, by R. T. Ravenholt, M. D. ....	4
'Third Generation' Foods May Change World Protein Picture, by Aaron M. Altschul .....	6
The Tragedy of Waste, Picture Story .....	8-9
War on Hunger ... on the Hill .....	11
In Brief .....	16
In Print .....	16
Quotes .....	16
Self-Help in India .....	Inside Back Cover

Cover Photo: Food for Freedom provides the  
incentive in this flood control project in Korea.

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*Fabian Bachrach photo*

## The Business of Agribusiness

by Henry J. Heinz II

The senior corporate executive has the responsibility for leadership in his community as well as his business. In fact, corporate leadership today recognizes that the corporation is really an "individual of scale," which can effectively influence many aspects of the total environment of its community. More and more it recognizes the imperative to support health, welfare, education, and the arts, and now new initiatives relating to such problems as employment and housing within the neglected parts of the community—our own domestic underdeveloped world.

If a corporation is international or multinational, then its obligations are naturally more global in character. In pursuing a policy of enlightened self-interest, we recognize that we have a stake in the developing countries of the world. There are unmet development needs requiring investment from both private and public sources, there are economic and technical assistance demands, there are potential markets. The fact that it may be 10 or even 20 years before very many of those markets are viable doesn't mean that American business ought to wait those 20 years to develop an interest in them.

The degree to which we are willing to take this risk is the measure of our response to the responsibility to share in the search for basic, long-range solutions to the problems of world food sufficiency. It calls also for close collaboration with our government, particularly the Agency for International Development and the Departments of Commerce and Agriculture.

### **How Agriculture Contributes**

The contributions of the agricultural sector in overall economic development are many:

First, and obviously, agriculture provides the food

and fiber needed for the growing population.

Second, agriculture is frequently a source of investment capital. This may be in the form of direct investment by farmers in industry, taxes, and the exportation of commodities for foreign exchange, which simultaneously reduces the need to import food and provides funds for buying foreign-produced capital goods.

Third, agriculture is a major source of manpower. As productivity is increased in the agricultural sector, manpower is released to the industrial sector of the economy.

Finally, the farm sector is an important buyer of the goods produced in the non-farm sector. It provides a market not only for fertilizers, pesticides, and machinery, but also for sewing machines, clothing, and bicycles.

If we are going to participate in agricultural development in the developing countries because we believe that decreasing per capita food supplies will only accelerate political instability, we must be very much aware of the investment climate as well as the attitude toward agriculture on the part of the host governments. Most of these countries have development plans of their own, and businessmen would be well advised to acquaint themselves with those plans. Many companies have had this kind of experience and developed proper sensitivity to the fact that the presence of substantial American investments is likely to be tolerated only to the degree to which it makes a contribution to national development.

### **Investing in 'Growth Points'**

Nor must we forget that the governments of developing countries, given the race between food and population, face alternatives which pose for them a serious dilemma in the use of these limited resources in social,

political, and economic development. They can invest in the "growth points" in their economies—the more responsive, successful farmers who can probably produce the food. But if they do this, the government is faced with an increase in the maldistribution of income because the "growth points" are the better farmers. And increased maldistribution of income leads immediately to just what we are presumably trying to avoid—increased possibility of political instability among the poorer, more numerous farmers because only the rich farmers are prospering.

On the other hand, if governments invest in the slower growing points, per capita incomes are likely to go down, and they may begin to lose the race. Again, they will face a problem of political instability due to reduced incomes and food availability.

### **Nations Must Be Willing**

The improvement of future rates of growth in food production in the less developed countries will depend primarily on the willingness of these nations to take the necessary steps. It will require extremely large increases in a number of areas:

First, the availability and intelligent use of a whole variety of production inputs—fertilizer, pesticides, implements, irrigation, improved seeds, and of course land.

Next, public and private sector collaboration in investment in the research and education needed to create two very rare commodities: adequately trained personnel, and new technology—particularly in the management of tropical crops and soils. In fact, the United States has very little experience in the management of tropical soils.

Third, investments which provide (again, back-to-back with government) a variety of infrastructure requirements in areas such as storage, transportation, and marketing systems which can, in the words of the Department of Agriculture, "support the desired agricultural production revolution and provide the incentives to bring it about."

These are some of the aspects of the problems of a business approach to meeting world food needs which have been thoughtfully considered during a year's work which led to the establishment of The Agribusiness Council, Inc.

After some months of private talks among leading representatives of foundations, land grant colleges, businesses, banks, and the government, a conference entitled "The World Food Problem: Private Investment and Government Cooperation" was convened in New York in April, 1967. It was off-the-record, and exhortatory talks were therefore unnecessary.

This conference brought together the leaders of more than 40 American agribusiness corporations, with representatives of the U. S. Government, international agencies, foundations, the academic community and other private organizations involved and interested in the problem, to examine ways in which business could contribute practically to its resolution.

Our objective was to formulate a specific program of coordination and action. The conference resulted in a mandate to the steering committee to explore and pursue avenues for translating this intellectual and moral concern of the agribusiness group with the problems of world food supply into appropriate forms of business activity.

The Agribusiness Council was formally incorporated, and its Board of Directors met for the first time on November 15, 1967. The declared objective is: "To establish and maintain a council for the purpose of stimulating and encouraging agribusiness in cooperation with the public sector, both domestic and international, to aid in relieving the problems of world food supply through increased agricultural productivity."

The Council's membership is broad and open-ended. Membership is in two categories: corporations involved in agribusiness, in its broadest sense, and individuals representing foundations, universities and other non-profit organizations involved or interested in agricultural improvements activities. The ratio of business to academic and foundation representatives on the Board of Directors, which now has 52 members, is about four to one. The main functions of the Council are three:

First, to provide agribusiness leaders with information about selected developing countries with tolerable investment climates in order to encourage their companies to make investment feasibility studies in agricultural development.

Second, to improve liaison and exchange of information with governments, international organizations, universities, foundations, and other non-profit groups with the objective of identifying areas of cooperation and mutual interest.

Third, to act as an information and referral center, both providing data and assisting the membership in locating sources of information.

It is not intended that the Council become a financial underwriting group, nor that it provide specific legal, engineering, managerial or investment advice to its membership. It is hoped, however, that it will be an effective catalyst in stimulating action in all of these areas.

### **Enthusiastic Reception**

We have been encouraged throughout the formative stages of this new organization by the enthusiasm of interested officials of a number of government agencies—AID in particular, and Agriculture, Commerce, and the White House, as well as interested international organizations. I believe there is a clear recognition on the part of the official family that the job cannot be done by the public sector alone; and there is a willingness to collaborate, and a receptivity to new ideas which augurs well for the future.

It is likely that the tax incentives for business going into these risky areas are still inadequate. If the Council fulfills the role which we envisage, we may make appropriate recommendations to the Congress and the Execu-

*Continued on page 10*



*Food for Freedom helps build an irrigation system in Afghanistan.*

## Self-Help and Food for Freedom

There is nothing new about self-help as a guiding principle of U.S. economic assistance. It has been a factor in foreign aid since the Marshall Plan. It has also figured significantly in the Food for Freedom donation programs administered by the Agency for International Development.

It was not until last year, however, that self-help was applied to sales of U.S. commodities under Title I of Public Law 480, the Act that governs Food for Freedom programs. Under the provisions of the amended Act which took effect January 1, 1967, the President must consider the extent of self-help measures being taken by a country before the U.S. enters into a sales agreement.

Twenty countries signed agreements containing self-help provisions last year. A review of these requirements reveals just how varied and complex agricultural development really is. Here are some specific examples:

- Afghanistan will undertake expansion of adaptive research in the application of fertilizers and use of improved seeds, as well as steps toward improving agricultural education.

- Ceylon is studying the merits of redirecting additional resources for producing export crops to domestic food supplies—among other measures.

- India has set specific goals for fertilizer production, crop protection, irrigation, agricultural credit, storage, insect and rodent control. Pakistan has similar proposals, including tubewell construction and family planning.

- Tunisia and Morocco are concerned with irrigation, ground water and erosion control, as well as measures for range management and livestock improvement. Liberia and the Congo (K) plan rural road projects as necessary to their agricultural development.

- Brazil's agreement calls for increasing the proportion of the Brazilian budget to be allocated to agriculture; speeding the reorganization of the Ministry of Agriculture; strengthening price incentives; encouraging private enterprise, and establishing land reform.

Some of the agreements cite the need for better statistical and reporting systems. Fiscal reform measures are emphasized in several.

*Continued on page 14*

# An Overview of Population Policies and Programs in Developing Countries

By R. T. Ravenholt, M.D.

## Part Two: Methods of Family Planning

The concepts of "family planning" and "population control" are of recent origin, but birth control has been practiced — in methods of varying degrees of sophistication — throughout recorded history.

In the present era, when control of whole populations (rather than individual births) has become a necessity, new techniques of contraception have been developed to supplement and to replace, when possible, less satisfactory and less effective methods. Evolutionary acceptance of new methods of birth control is proceeding swiftly, and even somewhat surprisingly. A brief summary will serve to compare old and new methods.

*Induced abortion* has been the foremost means of birth control in the world and probably is so today, mainly because of its widespread use in communist countries. Though it is still illegal in most non-communist countries, there are definite signs of relaxation of legal restrictions. In this country several states have passed new abortion legislation during the past year, increasing the freedom of women and doctors to terminate unwanted pregnancies. Of probable great significance for the future course of event was the recent enactment by Britain of an abortion law which essentially makes termination of unwanted pregnancy the prerogative of the woman and any two physicians.

If developing countries, such as India and Pakistan, now follow the legal precedent of Britain, as they have before, then legally induced abortion may become an important element in their family planning programs, as it has in Japan and in the communist countries.

*Conventional Barriers*, such as condoms, diaphragms, sponges, and foam, were for many years the most effective means of contraception and remain useful today, but are being supplemented and supplanted by more effective and acceptable methods. Condoms retain some usefulness, because they are the only male means other than sterilization, and because they can be made generally available by non-clinical distribution channels. An AID grant is making available 100 million condoms for the India family planning program to augment indigenous supplies and for subsidized distribution by commercial organizations.

*Voluntary Sterilization* has long been widely used in developed countries as a secure means of fertility control. During recent years this method (mainly vasectomy)

has been incorporated into the family planning programs of a number of developing countries, notably India; and during the past year there was a marked increase in the number of sterilizations performed by the Pakistan family planning program.

Although sterilization appeals to many individuals and to some directors of family planning programs because of its dependability and permanence, there are obstacles to acceptance:

1. Sterilization requires a clinical procedure, and clinics and clinicians are in short supply in developing countries.
2. Because the procedure is usually irreversible, it is used mainly by older persons with many children; in India the average acceptor is about 40 years old and has about six children.
3. It is a procedure aimed at *termination* of reproduction, rather than delay of onset of reproduction and spacing of children.
4. As used in developing countries, it is mainly a means of controlling *male* fertility.

### IUD's—Pro and Con

The development of the intrauterine contraceptive device (IUD) a few years ago, was a great breakthrough in means of contraception. During the last three years most outstanding family planning programs have placed major emphasis upon this form of contraception. The IUD has many attractive features: a small piece of plastic, easily manufactured, it costs only a few cents, and usually provides virtually complete contraception for years. Experience with IUD programs in developing countries during the past several years, however, has revealed serious limitations to the effective social use of the IUD's for control of fertility:

1. Like sterilization, the IUD requires a clinical procedure.
2. There are substantial psychological and logistical barriers to its general application, because a clinical pelvic procedure is required.
3. The bleeding and discomfort which not uncommonly occurs after IUD insertion poses a particular problem for women living in primitive circumstances without sanitary materials and bathroom facilities, and who must carry heavy burdens.
4. The IUD is not well tolerated by young women who have had few children or none, and hence is of little value in delaying the onset of reproduction or for spacing of the first several, wanted, children. The average woman in developing countries receiving an IUD has had four or five children; thus this device, like sterilization, is aimed mainly at cessation of reproduction.
5. Many women cease using the IUD due to spontaneous expulsion or deliberate removal. The overall

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attrition rate in developing countries has been approximately 2.5 to 3.5 percent per month, which means that about half of the women receiving IUD's discontinue their use during the first two years after insertion. The discontinuation rate among women with one or two children is about twice as great as among older women with six or more children. To resume use of IUD's women must return to a clinic.

Altogether, these limitations have seriously retarded the progress and effectiveness of IUD programs in the developing countries. South Korea, with excellent program leadership and a receptive population, has attained the highest rate of IUD insertions—about 20 percent of married women, age 20 to 44. Taiwan and Pakistan have made creditable progress.

The IUD will continue to contribute to family planning and to the solution of the world's population crisis, but it is now clear that the device cannot accomplish much that was initially expected of it.

### Oral Contraceptives

In contrast to the IUD, the acceptability and use of oral contraceptives continues to surpass earlier expectations—despite delays in licensing, long continued omission from many family planning programs, and widespread publication of alarmist reports of possible untoward reactions. In the United States and many other countries acceptance and use of "the pill" has grown steadily, for reasons including the following:

1. *Virtually complete effectiveness when used as directed.* Many studies have shown a remarkable dearth of pregnancies among women using oral contraceptives. Such results, despite many lapses in self-administration, indicate that the pills now in use have a considerable margin of effectiveness.

2. *Very low rates of negative reactions.* Although there is some evidence that oral contraceptives can cause thrombo-embolic and vascular disorders, the attack rate is so low that it is difficult to detect even with good epidemiologic surveillance. Recent studies suggest a mortality rate of about three per 100,000 users per annum—which is very low relative to maternal mortality rates of about 30 deaths per 100,000 live births in the United States, and 1,000 deaths per 100,000 live births in India.

3. *Word of mouth promotion.* This appears to be a main cause of the rapid increase in the use of oral contraceptives.

With approximately 15 million women now using pills, in all parts of the world, an extensive amount of experience with oral contraceptives is available for study and analysis. From it come these conclusions:

- Among women who truly have a choice of all contraceptive methods the great majority prefer the pill.
- For young women who wish to delay onset of reproduction, and space their wanted children, *there is not now any satisfactory alternative to the pill.*
- Many women in developing countries, even though illiterate, can and will use the pill effectively, if available.

- When available without prescription, and even at high cost, oral contraceptives are purchased and used by rapidly increasing numbers of women, *without substantial evidence of increased hazard* to such self-starters.

- The very slight hazards associated with use of oral contraceptives are acceptable to well informed American women, who have access to alternative means of fertility control; *for women in developing countries the very slight hazard from oral contraceptives is clearly much less than the hazards of non-use and pregnancy.*

- No family planning program can at this time be considered optimal unless it makes the pill readily available, along with other methods.

No doubt official action to extend the use of pills was to some extent inhibited until recently by cost considerations; but during the past year the international competitive price for oral contraceptives has fallen dramatically, to less than 15 cents per monthly cycle. It is now clearly within the financial reach of developing countries, with help from the United States if needed, to eliminate cost barriers to general availability of oral contraceptives.

At the beginning of this discussion the point was made that the world's progress toward policies and programs to deal with the population crisis is "agonizingly slow when measured by the magnitude of the problem and the need for rapid solution," but "remarkably fast when viewed in historical perspective." In view of the great seriousness of the population problem, and the enormous task that solving it will involve, it is only natural that we tend to chafe at the slowness of our progress. There are grounds for cautious optimism, however.

Though our tools are not yet perfect, even in their present state they are clearly adequate to do what must be done, if they are fully applied.

Policy constraints which have been important obstacles to forthright action in many countries until recently, are being removed with remarkable speed.

In every society there are many highly motivated women eager to adopt more effective means of fertility control as soon as legal barriers are removed and information and means made available.

Nevertheless, if optimism is not to outweigh caution, we must remember that our accomplishments thus far have been essentially preliminary or preparatory in nature — that more has been done on clearing away social, legal, and other barriers than on actual provision of family planning services. Only half a dozen of the developing countries have worked out rigorous and effective family planning programs, and even in these countries large numbers of women do not yet have ready access to the most efficient and preferred means of fertility control.

The preliminary work that had to be done is considerably advanced.

We are now entering an era in which it is socially, legally, medically, and fiscally possible to deal with the world's population crisis on a scale commensurate with the magnitude of the problem.



# 'Third Generation' Foods May Change World Protein Picture

by Aaron M. Altschul

Non-fat dry milk—plain old powdered skim milk—is, in a manner of speaking, the grandfather of a wide range of high-protein foods now being developed; for the new foods are called third generation in a series that began after World War Two with the powdered milk.

In the post-war days, when there was a great need for protein supplies, non-fat dry milk was distributed by AID through the American voluntary agencies and by UNICEF, and made an enormous impact on mothers and children. The milk for this program was supplied largely from surplus stocks of the United States and Canada.

When the supply of non-fat dry milk became short, a second generation of new foods recently developed by AID was available as an alternate source of protein. These were the low-cost, primarily or totally, vegetable protein mixtures that proved to be the nutritional equals of animal foods: the pioneer Incaparina, of Central America; Pronutro of South Africa; AID-developed CSM — corn, soy, milk; Bal Ahar in India, and others.

All of these have been distributed in special feeding programs in clinics and schools, or are scheduled for such a role. CSM was designed specifically to provide the essential elements of growth in children. It is being distributed through Food for Freedom programs in over 100 countries. Incaparina and Pronutro are being sold commercially in several countries.

Now we have come to the third generation, developed largely by AID sponsored contracts with commercial food firms. These are market-oriented, new foods developed primarily for the commercial marketplace but nevertheless nutritious. The line between the second and third generation foods is not yet clear. Some of the second generation foods are evolving into commercially viable products, and it is that criterion that separates the two groups.

The new foods, like their predecessors, will play a role in special feeding, such as in school lunch programs, or for infants in clinics, or for populations that need more protein. Eventually all foods in special relief programs, whatever their origins, will be commercially viable products.

The need for new protein foods is demonstrated by the fact that the widespread malnutrition observable in the world today is to a considerable extent protein malnutrition. The consequences of such malnutrition are far-reaching. Death is only one consequence; another is

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national failure to achieve economic growth because of the impaired physical and mental productivity of the people.

In addition to the shortage of protein there is an acute inability to provide sufficient calories. The developing countries which were once exporters of grain are now the major importers of it; and this situation will continue for some time.

This means that protein needs must be met in ways that do not drain the world's limited calorie supplies. The new foods of the second and third generations meet that requirement.

Although cereals are the major source of protein for the world's people, cereal protein is not as suitable for human food as is protein from animal sources. This is because the pattern of amino acid composition is inadequate in cereals, and the body needs protein with the proper balance of amino acids in order to utilize it fully. Unless the deficient amino acids are furnished by other foods, some of the protein in the cereals will be wasted. Hence, those who eat primarily cereals may not be getting the full protein potential of their food. Certainly this is true for infants and pre-school children.

There are two ways to remedy this situation without upsetting the dietary customs of the people: adding the deficient amino acids, or adding protein concentrates, to the cereals. Both methods are called fortification of the cereals.

## Amino Acids Help

Supplementation with amino acids does not increase the protein content of the cereals, but it does improve the quality. In societies where children are fed adult



*New protein foods come in many shapes and flavors.*

diets shortly after weaning, improving cereal proteins by supplementation with amino acids can often spell the difference between protein adequacy or inadequacy.

The whole notion of using amino acids as the means of improving immediately the protein quality of national diets arises from rather recent developments in producing amino acids at lower costs. In addition, technological advances are providing additional ways to fortify not only flour, but whole grains as well.

The alternative to fortification with amino acids is to add soy or other oilseed protein, or fish protein concentrate (FPC) to the flours. This has the advantage of increasing protein content while adding amino acids to improve the quality of existing protein.

The entire system comprises three components: cereal grains, amino acids, and protein concentrates. For every locality there exists a mixture of these three (or two of the three) most suitable and economic. Fortification should also include the addition of necessary vitamins as well as the amino acids or protein concentrates.

Progress has also been made in breeding cereals with higher protein or amino acid content. Breeding has the advantage that the improvement is permanent and does not require daily attention; but such new varieties will be widely grown only if their yield per acre is satisfactory, for yield will be the overriding factor in determining the economic success of a new variety.

One significant advantage in fortifying cereals or cereal products is that no change in national or ethnic eating habits is involved. New protein foods, however, must first of all be acceptable to the population — as acceptable as conventional foods. The new foods must

also be made primarily from raw materials indigenous to the country, or easily imported. The ultimate criterion of the success of such foods is their self-sufficiency in the market place — which is another way of highlighting the role of the private sector in developing these new foods.

A three-year experimental program aimed specifically at encouraging development of new protein foods has been undertaken by the Agency for International Development. The aim is to help food companies to understand the market, set up distribution systems, and market-test prototypes to determine the kinds of new foods that might succeed in a given country. During 1967 five contracts were signed with American companies to encourage development of new protein foods. The studies covered a protein beverage for El Salvador; a soy protein beverage, fortified corn foods, and soy foods for Brazil; and protein foods from high-protein wheat fractions for Tunisia. Currently numerous contracts are being negotiated for continuation of this program, including investigations on cottonseed protein concentrate, textured soy products, sterile protein beverages, coconut protein foods, fortified rice grains, and baby foods.

It is understood that these new "third generation" foods will not immediately reach the lowest economic strata of any given population, for whom fortified cereals represent a more practical source of protein. Nevertheless, these new foods will make it possible for a wider segment of any society to enjoy the nutritive value and the aesthetic satisfaction of foods which approach the more expensive protein foods. 

## AID HONORS CHILD FEEDING GROUP

The American School Food Service Association, which is concerned with school lunch programs in the United States and abroad, has received the first Certificate of Appreciation issued by the Office of the War on Hunger, Agency for International Development.

The award, cited AFSA's "outstanding contributions in improving and expanding child feeding programs in the developing countries as part of the world-wide War on Hunger."

Dr. John Perryman, Executive Director of ASFSA, accepted the Certificate on behalf of the organization's 52,000 members, all of whom work in school lunch programs in the United States.

In its overseas operations ASFSA uses volunteer food experts who normally work in teams of two. So far, volunteers have been sent to Korea, Jordan, Tunisia, Algeria, Panama, Ecuador, Guyana, and the Philippines.

A ninth team, currently working in Brazil, has the special assignment of assisting the Campanha Nacional de Alimentacao Escolar (Brazil's National School Lunch Program) in forming an or-

ganization in Brazil comparable to the ASFSA. The Brazilian organization may also serve as a model for similar operations in other countries.

Brazil already has a school feeding program supported by U.S. food donations under Public Law 480.

Requests from AID overseas missions for assistance in school feeding and child feeding programs are routed through the Nutrition and Child Feeding Service of the War on Hunger to ASFSA, in accordance with a standing agreement. ASFSA then canvasses its membership for qualified volunteers who can take four- to eight-week assignments overseas. The nutrition experts evaluate existing feeding programs, establish new ones, and make recommendations designed to improve programs administratively and nutritionally.

During their assignments abroad, members of ASFSA teams are paid only per diem and travel costs by country AID missions. Their employers — city or county governments, boards of education, or school districts — make their services available and carry them on salary as a contribution to combatting malnutrition among children overseas.

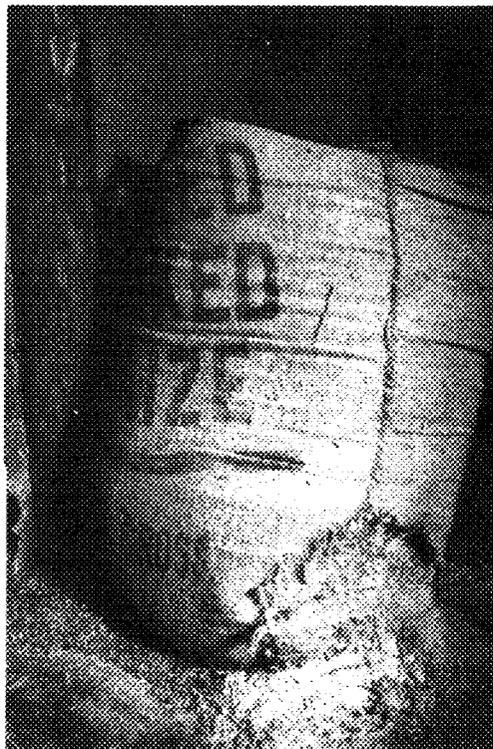
# The Tragedy of WASTE

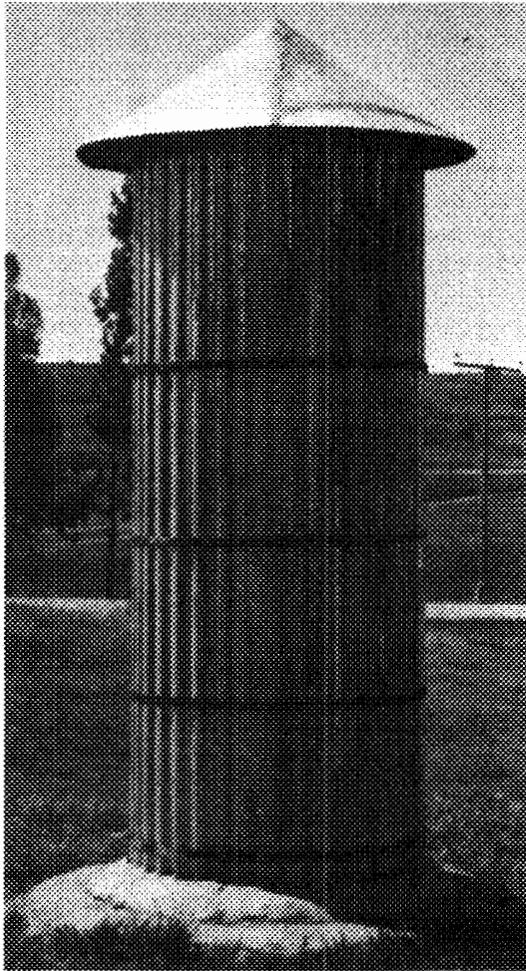


*This voracious feeder can have up to 900 descendants in one year.*

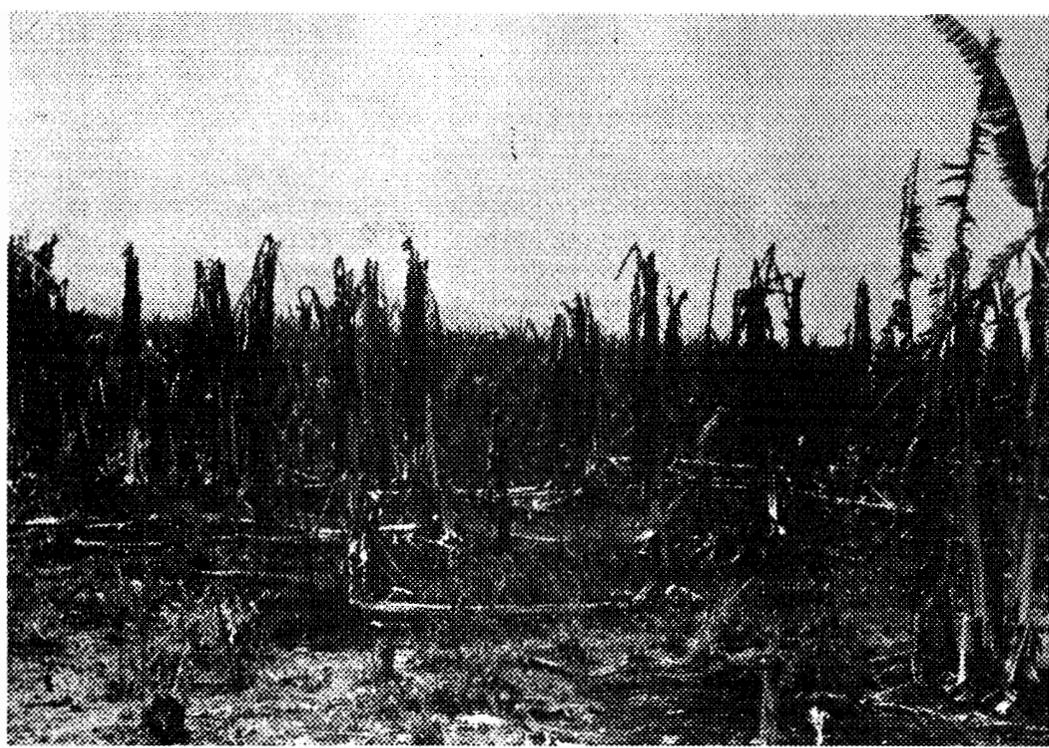


*Left above is a traditional African silo; right base. Woven grass baskets used in Angola (see page 10). Other photos below show damage done by rats in the act.*





...t, a modern version with metal walls, concrete  
...r left, below) give stored food little protection.  
...ts, with one of the marauders (center) caught in



*Locusts devastated this banana plantation in Honduras.*



The food problem of the developing countries is due only in part to insufficient production. Waste, in the form of spoilage and the depredations of rats, bats, insects, and birds, takes a heavy toll: at least one-fifth, and up to one-half and even more of all food produced.

In the Congo, a carefully controlled test showed that half of the stored sorghum was destroyed by insects in one year. Elsewhere such precise information is not available, but the estimates of experts are dismaying: enough grain lost annually in Africa to feed 55 million persons; store wheat lost in Argentina equal to 880 million pounds of bread; food wasted from all causes in India valued at twice the national budget.

The problem of waste is being attacked from many sides. The Agency for International Development is carrying on an extensive vertebrate pest control project. The U. N. Food and Agriculture Organization (FAO) is carrying on a food technology program in which emphasis is given to simple improvements in food storage methods. Such improvements, demonstrated in Ghana, could save 20,000 tons of corn per year on a country-wide basis—one-tenth of Ghana's production. There is waste everywhere; even in the United States, rats devour 5.3 million tons of grain annually—but this is only about three percent of total production.

The tragedy of waste is that it hits hardest where food is already in short supply. To cut the waste of the world's cereal grains by one-half, the FAO estimates, would save nine million tons of protein, and nourish 280 million persons for a year.

## HEINZ from page 2

tive branch. This is an illustration of a specific way in which the Council and the government might work together to overcome the reluctance of the business dragon to venture into unknown territories.

One form of action is well illustrated by the formation, by five international companies—four of which are closely associated with the Agribusiness Council—of a consortium, with the support of AID, to work with the government of the Dominican Republic in an agro-industrial development program on government-owned lands [see *War on Hunger*, March 1968].

The consortium will plan and implement a development project designed to “mesh modern technology and profitable systems of farming, food processing and marketing with the government’s long-term program for land improvement and broadening of land ownership among Dominican farmers.” After 10 to 15 years, Dominican operators will assume control from the consortium.

Here is a model cooperative effort in which companies of broad complementary skills are going to join their interests with government objectives, in order to establish a comprehensive agribusiness system. It is to be a system designed to make profit, to incorporate land ownership concepts, and to assist in the overall national development plan of the Dominican Republic.

### Plenty of Opportunities

There is no shortage of such opportunities. It has been estimated that there are hundreds of agribusiness opportunities in Latin America alone.

Recently, we circulated some materials to our members regarding opportunities in northeast Thailand. Here again is an area in which agricultural development has a high priority, both in U. S. policy and the programs of the Thai government. Northeast Thailand is perhaps the poorest and most underdeveloped region of that country, and vulnerable to insurgency now being mounted with increasing vigor by the Communists.

Yet, from a sound agricultural standpoint, some 90 percent of the people in the Northeast are farmers who own their own land. Unfortunately, they farm it mostly at a subsistence level. Recently there has been the beginning of a diversification program which includes kenaf, corn, and cotton, as well as the glutinous rice which has for centuries been the staple diet of the farmers and their families. With the completion of irrigation projects already underway and contemplated, it will become practicable, in time, to increase this diversification.

The Government of Thailand and AID have recognized the need to help this area’s economic growth. The goal is to bring the estimated \$63 a year per capita income up to the national average of \$135.

### Marketing Service Planned

AID’s concept calls for establishing farm service-marketing centers in four to six locations which would appear to have greatest potential for quick results. These centers would combine under one roof purchasing, han-

dling, and storage of agricultural commodities; farm credit offices; sale, distribution, and parts maintenance of farm equipment; agricultural extension offices; and contract-farming demonstration and service facilities. The sale of agricultural products for both domestic and foreign markets, according to this concept, would be undertaken in conjunction with these service centers.

As for capital structure, investors hopefully will take full initiative in recommending organizational entities. Furthermore, AID recognizes that this project might not be economically viable on strict commercial grounds during the early stages, and is, therefore, prepared to consider special support measures such as extended risk guaranties for U. S. loan and equity investments and possible operational subsidies in addition to the widely available political risk guaranties. But the goal, of course, would be a project which would have the potential of becoming self-sustaining on a commercial basis in a reasonable length of time.

### Agribusiness Conference

Copies of the Conference Proceedings of the First International Agribusiness Conference, sponsored by the Chicago Board of Trade one year ago in Chicago, are available in limited quantities. Requests should go to Robert L. Martin, Chairman of the Board, Chicago Board of Trade, 141 West Jackson Boulevard, Chicago, Illinois, 60604.

There are some 27 U. S. firms known by AID to be interested in various aspects of agribusiness development in Thailand. Twelve of them, I am glad to say, are on the Board of the Agribusiness Council.

This is indicative of a growing involvement on the part of a number of U. S. agribusiness firms. There are many more which may be concerned, and perhaps interested, but are still uninvolved. There may be still more which are not yet adequately concerned, interested or motivated.

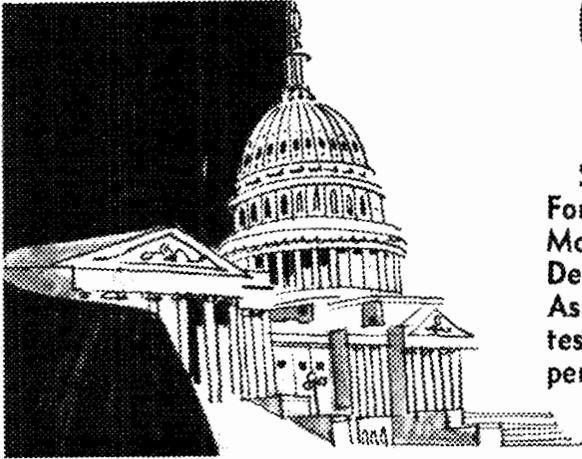
The time is right to move ahead. Government is interested in meeting the world food problem where America’s diplomatic, security, and humanitarian considerations are involved. Business shares those concerns, and is interested in approaching the problem of world food sufficiency where there is reasonable chance for profit. The two areas are not exclusive. They do overlap.

Business, operating with respect to its long-run enlightened self-interest, can profitably undertake projects with knowledge of and respect for sensitive issues. It can make available the entrepreneurial innovation and managerial efficiency required to move an investment project from marginal to the positive in countries which are in critical need of agricultural development.

None of this is easy. The defeat of hunger will require patience, energy, vision, and determination.



# WAR on HUNGER on the HILL



Secretary of State Dean Rusk presented the case for a \$2.9 billion Foreign Assistance Act to the Senate Foreign Relations Committee on March 11. In addition, the men who head the Agency for International Development's regional bureaus—Near East-South Asia; Africa; East Asia; Vietnam—and the Coordinator for the Alliance for Progress testified before the House Foreign Affairs Committee. Here are pertinent excerpts:

## Secretary Rusk:

We cannot find security apart from the rest of the world. And, in the long run, we can be neither prosperous nor safe if most other people live in squalor or if violence consumes the world around us. What we want for ourselves is, in the main, what other peoples want for themselves. . . .

The purpose of our assistance to the developing countries is not to "buy friends." It is to help build free nations, increasingly able to meet the needs of their peoples. . . .

Increasingly, our aid is conditioned on specific self-help efforts by the less developed countries. Increasingly, they are taking the difficult steps necessary for development progress. Development requires internal leadership and drive, painful choices and sacrifices, and people who are willing to work.

The self-help record is good and it is getting better. Nearly five-sixths of the development investment in the major recipients of AID assistance is self-financed. . . .

AID is giving top priority to the War on Hunger. The beginnings of a significant breakthrough in food production are already visible in several countries. It is no longer just theory—we know—that food production can be rapidly increased through the use of new seeds, and more fertilizer and pesticides, combined with research, improved storage, marketing and distribution facilities, farm credit and producer price incentives. . . .

The developing nations must continue to increase the priority they themselves give to agriculture, and they must have continuing outside assistance to get on with the job. That is why AID proposed to devote nearly \$800 million in fiscal year 1969 to direct programs in agriculture—an increase of nearly 40% over the level possible with reduced appropriations in fiscal year 1968. . . .

Agriculture alone will not answer the problems of world food and nutrition. General economic development is needed, as well, to provide effective demand for food on the part of the consumer at prices which make it profitable for the farmer to grow it. Farmers in turn must be able to purchase better equipment and consumer goods with the profits they realize. . . .

The less developed nations are also beginning to come to grips with their problems of rapid population growth. Today more than half the people in the developing world live in nations which have adopted official policies of reducing birth rates.

## Maurice J. Williams, Assistant Administrator for Near East/South Asia

Dynamic changes in agriculture are apparent in the countries we are assisting. Two years of drought in India and Pakistan masked the extent to which agricultural technology was changing and delayed its effect. Good weather this year is allowing the new technology to pay off. Agricultural production will reach an all-time high. . . .

Price incentives are needed to motivate the farmer to invest in new seeds, fertilizer, and to use better practices. The Pakistan and Indian Governments have established support prices for foodgrains and, to some extent subsidies on agricultural investment goods. Farmers are responding with increased investment and production. These developments reflect the dramatic reversal of past policies which has occurred. Formerly these governments sought to transfer savings from the mass of people in subsistence agriculture—through controlled low prices and forced levies—to the urban population and heavy industry. Now the trend of investment policy has shifted decisively in favor of a progressive and commercially-oriented agriculture as the leading



*Dean Rusk*



*Maurice J. Williams*



*R. Peter Straus*

edge of the development effort, drawing on the services of industry and operating increasingly through freer markets. The social and political implications of these changes are still being worked out. . . .

Family planning is a new task that involves new ideas, new methods, new organizations. . . . The involvement and understanding of 45 million married couples in the cities, towns, and 550,000 villages of India must be sought and obtained—approximately ten times the number reached to date. . . . Pakistan has a comprehensive family planning program with the objective of reducing the birth rate to 25 per 1000 by 1975. It has been running two years. It is on schedule. . . . In Turkey, the government is also facing up to the problem of rapid population growth. A major step was taken in 1965, when laws, dating from the 1920's and 1930's prohibiting the import, sale, and distribution of contraceptives were repealed. . . .

**R. Peter Straus, Assistant Administrator for Africa**

Almost 25 per cent of all AID assistance to Africa in FY 1969 is proposed for agricultural and related rural development activities. Agriculture is the springboard of African development, since an estimated 80 per cent of Africans make their living from the land and it generally is the largest sector of these economies.

Development progress is difficult in African agriculture. Soil and climatic conditions are often unfavorable, and disease and pests abound. The departure of many skilled farmers, absence of sufficient storage facilities, and significant deficiencies in food production (wheat, rice, sugar) are common problems. There is widespread need to modernize farming techniques and inputs.

African governments are trying hard to increase agricultural production, train skilled technicians and administrators, and build the necessary institutions. . . .

The FY 1969 program will continue to shift toward increased production of cash crops and foodstuffs now in chronic short supply, reducing somewhat AID's past focus on development of institutions and training. . . .

AID is also moving to help Africans overcome the serious deficiencies in diets, particularly protein, which are almost universal throughout Africa. In general, that shortage appears to result from Africans' inability to afford higher-cost protein foods, as much as their inadequate production. U. S. and other assistance to help increase earnings will therefore be important in the long term. In the interim, AID will continue to encourage farmers and businessmen to produce high-

protein foods and to enrich local foods. A pilot plant will be established for evaluating fish species and demonstrating the manufacture of fish protein concentrate. . . .

Over 8 per cent of the FY 1969 program devoted to health improvements will continue AID's participation in projects which attempt to reduce the toll of endemic diseases which afflict large segments of Africa's population. The largest portion involves the combined measles/smallpox project in 19 western and central African countries. The incidence of measles and smallpox has fallen sharply as a result of this campaign. The malaria eradication effort in Ethiopia also continues. In addition, the health program includes projects to improve and extend local health facilities in Liberia and Ethiopia.

**John C. Bullitt, Assistant Administrator for East Asia**

We are now challenged to help work for stability and growth in Indonesia, which has recently returned from the brink of Communist domination.

And in the Philippines, we are contributing modestly to an increasingly promising development program.

The race between food and people is a stark dilemma faced today by developing nations in East Asia, as elsewhere. . . .

Family planning is part of the answer. And in Korea, Thailand, and Indonesia, national programs are underway or in the planning stage; in the Philippines, there is increasing private action. These programs are being supported by AID wherever we are requested to do so, either directly or through grants to the Population Council and the International Planned Parenthood Federation. . . .

But no matter how successful population programs are, they cannot eliminate the need for big increases in East Asian food production over the next two decades. And growing more food requires more than new seeds and extension techniques—a nation's entire economy must be modernized. Economic development and a reduction in birth rates must go hand in hand. Only with family planning services and supplies available can mothers and fathers learn soon enough how to limit their family size. Only as societies show promise for developing economically, can mothers and fathers begin to see that they no longer need large families for their security, but rather that the opposite is true.

Consequently, along with helping countries develop effective nationwide family planning programs, we are helping increase food production in East Asia. . . .



John C. Bullitt



James P. Grant



Covey T. Oliver

First in the Philippines, and now in Laos, Indonesia, and Vietnam, the new [rice] strains, new extension techniques, fertilizers, pesticides—and eager peasants—are combining to produce yields much greater than traditional rice culture—a true modernization process. Throughout East Asia, and elsewhere, AID is supporting this peaceful revolution, in cooperation with governments and private institutions.

**James P. Grant, Assistant Administrator for Vietnam**

The new government installed in November 1967 has formulated its plans for an intensification of the agrarian development effort. It has again increased the retail price of rice in Saigon, this time by more than 10 percent in order to provide a better price to the farmer for his paddy. A goal of "universal" elementary education has been set for 1970, by which time it is expected that, security conditions permitting, more than 85 percent of the children will be in school. A greatly stepped up program for land title distribution and enforcement of land rent ceilings is being initiated. Possibly of greatest long-run significance, the new government has launched a tightly scheduled program, centered on the "miracle" strains of rice, designed to increase rice production 50 percent by 1971.

There is no clear answer yet to the question of what effect the Viet Cong Tet offensive will have on the AID supported programs in Vietnam for the balance of FY 1968 and for FY 1969. . . .

The accelerated rice production program is proceeding apace, but the goal of 44,000 hectares of miracle rice to be planted this spring has been reduced to 26,700 following post-Tet consultation by the Ministry of Agriculture with each of its provincial offices. . . . The downward revisions reflect primarily deteriorated security conditions in the countryside. However, the accelerated military manpower mobilization undertaken since Tet has also forced cutbacks in civil programs. In Phu Yen Province the entire agricultural staff has been drafted.

The priority that the GVN is continuing to give to this rice program is indicated by the fact that the reduced 26,700 hectare goal still represents one of the more ambitious programs of its type ever undertaken by any country, quite apart from the war conditions prevailing in Vietnam. . . .

Unless security conditions cannot be restored to the level prevailing prior to the January attacks, we remain hopeful that this program will prove to be a major success.

**Covey T. Oliver, U.S. Coordinator Alliance for Progress**

Over half the population [of Latin America] derives its livelihood from agriculture, yet food production has been growing at only 3% annually—barely enough to keep up with population growth. Most of this increase has come from the cultivation of new land rather than increased productivity.

The major reasons for this lack of growth were:

- 1) concentration on traditional export crops like coffee, cotton and sugar, etc.;
- 2) pricing and marketing policies which limit the return to the farmer on food crops;
- 3) shortage of agricultural investment goods such as fertilizer, pesticides and machinery to boost productivity;
- 4) lack of adequate services—i.e., research, extension, education, and credit—to the farmers particularly small and medium producers, and
- 5) in some countries a land tenure system where there are many farm units too small to be economic enterprises along with large estates on which land is underutilized.

The results registered in 1967 give some hope that this trend can be reversed. Food production in Latin America during 1967 rose over 6%—or about 3% per capita. While many factors were at work here, including favorable weather, we are able to point to improved price policies and producer incentives as well as an enlarged agricultural credit program, supported by past AID program and fertilizer loans, as important causes of the near 11% growth in food production in Brazil during 1967. Currently we are encouraging several key countries to adopt programs to provide adequate price incentives to farmers for food crops, and to remove duties and administrative restrictions on the import of fertilizer, insecticides, and improved seed. . . .

The FY 1969 program includes projects which, as now planned, would provide:

- agricultural credit to over 80,000 farmers in Brazil, Colombia, Peru, Ecuador and the Dominican Republic.
- farm-to-market roads in Bolivia, Colombia, and Peru.
- 50 research stations in Brazil for more than 100 research activities.
- 100,000 tons of fertilizer for Chilean farmers.
- 3 public markets and 600 marketing credits in Paraguay.
- grain storage facilities for 120,000 tons of grain in Uruguay.

## SELF-HELP from page 3

### General Provisions

The specific plans stem from general self-help considerations described in the Act. They include:

1. Producing needed food, rather than non-food crops;
2. Developing agro-industries through private enterprise;
3. Training farmers;
4. Constructing adequate storage facilities;
5. Improving marketing and distribution systems;
6. Creating a favorable environment for U.S. and indigenous private investment;
7. Implementing government policies that insure incentives to producers;
8. Establishing and explaining institutions for adaptive research, and
9. Allocating sufficient funds to carry out these programs effectively.

The reports from the countries on their self-help progress further indicate the need for time and patience to achieve advances. They point up the far-reaching changes that may be necessary to reach overall goals.

India, for example, now is placing less reliance on massive irrigation schemes and more on minor irrigation, such as tubewells. The 1967-68 target increase in the area served by minor irrigation is 3 million acres; the actual increase may be higher, as much as 4 million acres. Emphasis also is changing somewhat from extensive irrigation for drought insurance to intensive irrigation aimed at maximum production, including multiple cropping.

The spread of new high-yielding seeds, vital to India's long-range objectives, reached 15 million acres during the year, more than double the 1966-67 level.

Fertilizer use in India, previously light, has increased sharply. Demand has outrun supply, despite the fact that total availability this year is expected to be more than 2 million tons, nearly six times the amount available in 1960-61.

To reduce field losses, India is rapidly increasing the land area sprayed by pesticides, and expects to exceed substantially the 59 million acres covered in 1966-67.

Although the amount of credit available is not yet sufficient to meet the long-range need, India has been taking steps to increase the amount available by loans through cooperatives (which provide the bulk of the

credit), and expand the role of commercial banks in financing agricultural development.

Indonesia is another country where development is especially long-range. During 1967, the Government was primarily concerned with overcoming consequences of years of misrule. One problem is the necessity to step up rice production. The rice intensification program is being implemented by BIMAS, a government-sponsored extension program. Teams of technicians, auxiliary workers, and students visit rural communities and, working with groups of farmers, demonstrate techniques for increasing food production, improving storage, processing and marketing, and organizing cooperatives. One of the objectives of BIMAS is to enable farmers who have participated in the intensive program to carry on the improvements and increase their yields on their own or through cooperatives.

In addition to intensified rice production, a program for replanting and reforesting eroded lands has been expanded.

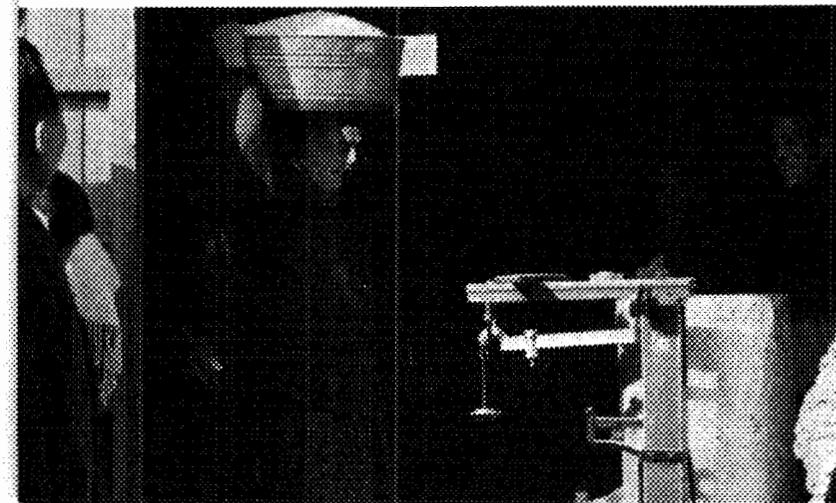
Several countries reported encouraging advances in food production in 1967. These were due not only to the judicious use of Food for Freedom, but to the successful coordination and impact of several long-range assistance factors: the import of new seeds, especially wheat and rice; fertilizers; pesticides; farm and transportation equipment financed by dollar credits from AID.

Pakistan, one of the countries making steady progress, has brought its agricultural self-help programs together into a concerted "Grow More Food" campaign. The leading performer is the high-yielding Mexican semi-dwarf wheat. Three hundred and fifty tons of wheat seed were imported from Mexico in October 1965; in 1967 Pakistan made the world's largest seed purchase, 42,000 tons. It is estimated that Mexican-type seeds were planted on at least three million acres for the crop to be harvested in the spring of 1968. Farmer incentives to increase production by planting semi-dwarf wheats have been supported by a government floor price. Training in the cultural practices necessary to grow the new wheats has principally been provided on 10,000 one-acre demonstration plots set up in the irrigated districts of West Pakistan. AID loans provided funds for substantial purchases of fertilizers and pesticides from the U.S.

Pakistan also expects to become self-sufficient in rice by the early 1970's. Primary emphasis has been placed

*Smiling Korean woman gets flour for self-help work.*

*Self-help in Tunisia: workers build*



on IR-8, developed at the privately financed International Rice Research Institute in the Philippines. The East Pakistan Agricultural Development Corporation also is carrying out research on indigenous rice varieties on its own seed farm and through registered seed growers.

Low-lift irrigation pump projects in East Pakistan increased the irrigated area last year by 259,086 acres. Both public and private tubewell construction has expanded. More canal water and additional power for tubewell pumps should also be available from the newly completed Mangla Dam.

Israel's agricultural strides are well known. The Government reported this year that great efforts are directed toward making the best use of available water resources. The main activities during 1967 were diversion of the Manasseh Streams; setting up reservoirs in western Galilee; purification of sewage water in the Tel Aviv area; preservation of rainwater; connecting small streams to the national water network; drilling new wells, and desalinization research.

Production of milk rose by 9 percent, with the average yield per cow ranking among the highest recorded in any country.

#### South Korea Sets Goal

South Korea, another country making progress, has set an agricultural goal of nine million tons of grain in 1971, estimated to be sufficient to meet total demand. Due to drought, however, production fell short in 1967.

Agricultural research programs are being carried on by Korea in many areas. Numerous projects seek higher productivity in food crops. Drought control is another major subject under study. Other research projects deal with industrial crops, use of sloped idle land, and increased diversification.

Technical assistance, often under participating agreements with the U.S. Department of Agriculture, has helped lay the foundations for more efficient farming practices. Education, training and research have been carried on with the help of grants and advice from AID, the United Nations, and other international and private institutions.

The Afghanistan Government is stressing education in agriculture, and reports that freshmen enrollment in the Faculty of Agriculture of Kabul University has tripled.

#### Research in Morocco

Morocco is testing the new wheat varieties imported from Mexico. The Government has also completed the first phase of a large-scale campaign to increase the production of cereals on dry-land subsistence farms. The main effort of this campaign is to encourage farmers to try new wheat varieties and fertilizer. In 1966-67 the program covered about 432,000 acres. Drought last year cut production, but in 1967-68 the program has been expanded to cover nearly twice the land area.

Morocco also continued its tree planting program, expanded training in agriculture, and plans to improve livestock and range management.

In Tunisia, demonstration plots were planted in wheat-growing regions to compare the performance of four local wheat varieties with four dwarf Mexican varieties. Some will be grown under irrigation, and the remainder under dry land farming. If the dwarf Mexican varieties prove successful, the area devoted to them will be greatly expanded in 1968-69.

Projects are under way in Tunisia to control erosion and improve water management, assisted by AID loans. Several dams have been completed, and their water supply systems are now being completed. Two projects in the north, when developed, will provide irrigation to 72,000 acres, about 25 percent of which can grow wheat. A contract has recently been signed with an American firm to work out a program for the development and utilization of underground water in Tunisia.

#### Food-for-Work Programs

Under the Food for Freedom Title II donation programs during the past year, it was estimated that nearly 13 million people benefited from projects in which U.S. food was used as part payment for work performed.

Korea's effort is particularly outstanding. More than 500,000 acres have been reclaimed and distributed to farm families. Thousands of farms have been improved through irrigation, erosion and flood control, and terracing.

In Ghana construction workers on farm-to-market roads are being paid in part by Food for Freedom, and in Northeast Brazil, 250,000 persons are learning to read and write and being trained in farming. Food for Freedom is used as an incentive.



—Jerry E. Rosenthal

*Afghanistan: another view of project shown on p. 3.*

*drainage channel for irrigation project.*



## IN BRIEF

### Aid for Africa

The Agency for International Development and the Department of Agriculture are responding to requests made to Vice President Hubert H. Humphrey during his latest African trip, Secretary of Agriculture Orville L. Freeman and AID Administrator William S. Gaud have announced.

A two-man team has gone to the Congo to analyze that country's self-help efforts in agriculture and identify hindrances to future agricultural growth. A USDA/AID team is setting up rice demonstrations in Senegal, and a similar team is working toward increased rice production in Liberia. Other projects are planned for Zambia and Kenya.

A recurring theme in the Vice President's talks with African leaders was how U. S. agriculture can help spur farm modernization in Africa. Several heads of state requested technical assistance in agriculture.

### 191,000 Per Day

The world's population is increasing by 191,000 persons per day, the Population Reference Bureau calculates.

According to statistics reported by the Bureau, each day sees an average of 324,000 births and 133,000 deaths. About 10,000 of the deaths are due either to starvation or malnutrition.

If these rates continue, the Bureau says, world population will pass 3.5 billion by January 1, 1969, and double in the next 31 years, reaching 7 billion by the year 2000.

### Educational Comics

AID missions in Latin America are using an educational comic book to spread self-help information on subjects ranging from agriculture to nutrition.

The adventures of "La Familia Gomez" appear monthly, published by the Regional Technical Aids Center (RTAC) in Mexico City. Heavy demand has pushed the press run for the 16-page books up to 350,000.

RTAC is an adjunct to the Alliance for Progress.

\* \* \*

### Bottled Protein

The Coca-Cola Company is test-marketing a chocolate-flavored protein beverage in Brazil.

The beverage, called Saci (pronounced "Sah-see"), is made from Brazilian soybeans, flavored with Brazilian coca beans. It provides three percent protein, as well as essential vitamins.

## In Print

Recent Publications of Interest

*The World Food Problem, A Report of the President's Science Advisory Committee, 1967.* Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. (3 volumes.) Vol. I .60; Vol. II \$2.75; Vol. III \$1.25

This is the "bible" of the War on Hunger. A lengthy study, organized around the topics considered to represent factors of major importance in the description of and possible contribution toward the solution of the problems of the food supply and nutritional requirements in the developing nations.

Volume I contains the general description of the problem, the study recommendations of the Panel and summaries of subpanel reports. Volume II is a compilation of the subpanel reports and Volume III is an assembly of resource papers.

*Marine Science Affairs—A Year of Plans and Progress.* Second annual report of the President to the Congress on marine resources and engineering development. March, 1968. 228 pp. \$1.00, Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

The report describes the activities and accomplishments of all Federal agencies in the field of marine science during 1967, an evaluation of such activities, recommendations for new legislation as the President may consider necessary or desirable, and an estimate of funding requirements during the succeeding fiscal year.

## Quotes

"It is plain that no very useful approach can be made to such great problems as hunger, disease, overpopulation, and the pollution of the earth's atmosphere unless this country, the European powers, including the Soviet Union, and Japan and certain other large and industrialized nations can act in some kind of concert."

Richard H. Rovere, in  
*The New Yorker*

\* \* \*

"The only long-term population growth rate which is acceptable is a growth rate of zero, [brought about] by a lowering of the birth rate, by a rise in the death rate, or by a combination of the two. Those campaigning for population control by lowering the birth rate have been unsuccessful. As a result we are now facing what I have called the 'death rate solution'—an end to the population explosion which involves a large increase in the number of people dying each year. . . . A birth rate solution could have been planned, but in its absence a death rate solution automatically will occur."

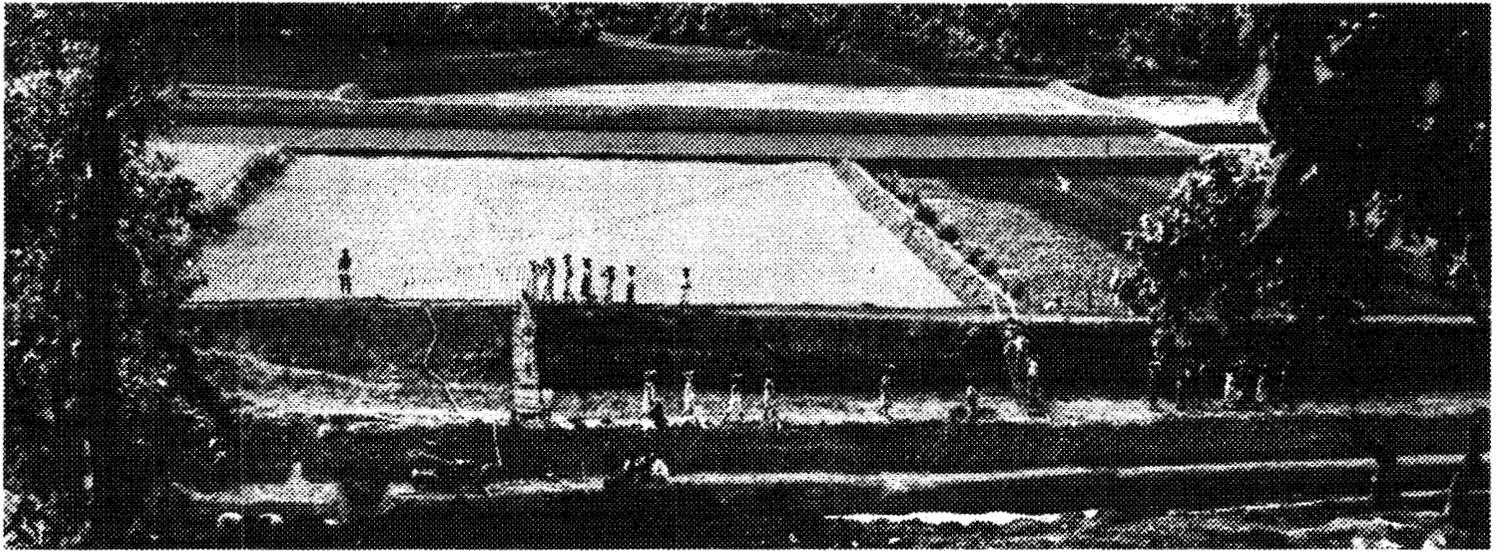
Dr. Paul Ehrlich  
Biologist,  
Stanford University

\* \* \*

"The greatest limitation on the application of corrective nutrition measures at this moment is the lack of knowledgeable, properly trained personnel both in this country and abroad—personnel able effectively to guide and institute sound corrective measures. The complex resolution of nutritional problems from production and processing of raw foodstuff, storage, distribution and proper utilization to provide a suitable diet for all members of the family demand a wide spectrum of technologic, professional, semi-professional, industrial, governmental and consumer understanding."

Dr. William J. Darby  
Biochemist,  
Vanderbilt University





## SELF-HELP In India

Photo above shows one of several self-help projects at Chotanagpur, India. The improvements being made are expected to make the farmers in the area independent of further food aid.

AID-sponsored self-help projects in India are improving the land, giving workers a chance to earn part of their wages in food. Photos at right and below show an irrigation project at Majhatoli. Irrigation in India can increase farmers' incomes as much as 30-fold.



DEPARTMENT OF STATE  
Agency for International Development  
Office of The War on Hunger  
Washington, D. C. 20523

POSTAGE AND FEES PAID  
Agency for International Development

