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agenda

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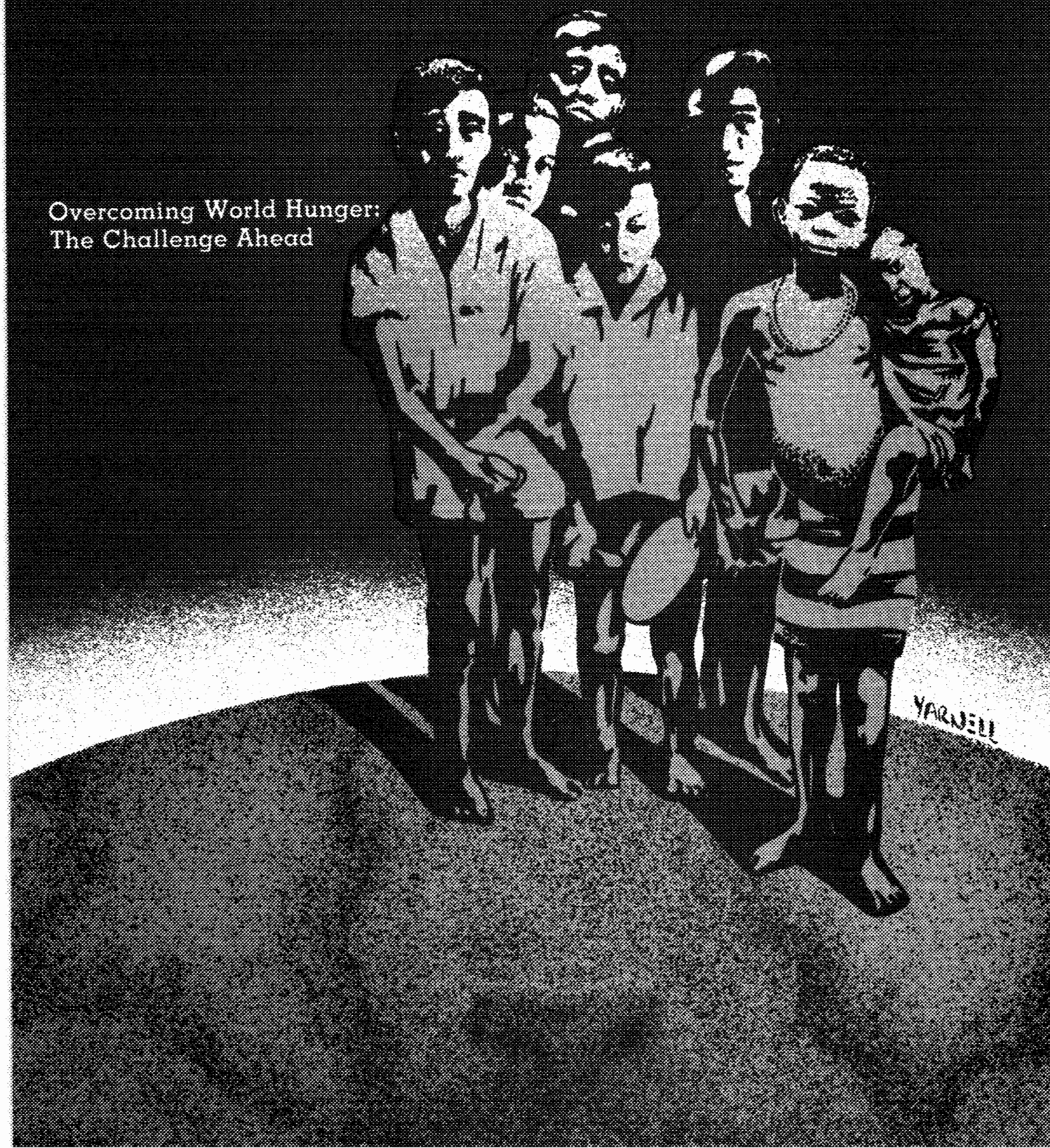
Overcoming World Hunger: The Challenge Ahead



DEVELOPMENT UPDATE

A woman's lot (cont'd): 50% of the world's population is female; women constitute 28% of the labor force, receive 10% of the world's income, possess less than 1% of the world's wealth and comprise 75% of the world's 800 million illiterates.

The United States is a have-not nation when it comes to certain critical metals, says Harry J. Gray, chairman of United Technologies Corp. "From 1950 to the present, our raw materials situation has deteriorated drastically. We have never been self-sufficient and today we are frighteningly vulnerable to overseas producers." The *Journal of Commerce* quotes him as saying: "Of immediate concern are the supplies of cobalt and titanium, both of which are used heavily in the production of commercial and military aircraft . . ."

The Christian Church in Africa: "Today—despite great obstacles created by Marxist governments and repressive presidents—the Christian church, some observers believe, has become perhaps the most powerful institution in sub-Saharan Africa." Writing in the *Los Angeles Times*, David Lamb says: " . . . Christianity in Africa is growing so fast that by the year 2000 the continent may have the greatest concentration of Christians in the world. Their current strength: 190 million.

One man's opinion: "There is hardly any future for multinationals in developing countries. That little party is over. Those countries have debts of $300 billion and 60% of it comes due by 1982." So says J. Peter Grace, boss of W.R. Grace & Co., a $5 billion conglomerate. Grace has taken his company out of Latin American shipping, airlines and banking.

How to conquer hunger in the Third World? Orville Freeman, former secretary of agriculture, says that if the hour of deliverance is to arrive for the world's hungry people, the following ingredients must be incorporated into poor countries' rural development mix: land reform, including supporting services to provide incentives for producers; sensible pricing policies if small producers are to be expected to risk their families' future on new technology; broadly based community involvement; irrigation; population control; organizing women in village communities; and basic to everything, political leadership with courage, commitment and follow-through.

Family planning has been approved by 12 African countries with large Islamic populations and high birth rates. According to the *New York Times*, the governments of Cameroon, Gambia, Ghana, Guinea, Liberia, Mali, Morocco, Nigeria, Senegal, Sierra Leone, Upper Volta and Zaire have agreed that the Islamic religion does not oppose family planning and have called on Moslem leaders to encourage family planning for the promotion of maternal and child health.

A call for greater North-South trade: "If trade among the countries of the European Community has been such a success and has served the interests of all parties concerned, it is because one can trade more and in a better way with a partner who is able to pay," wrote Gaston Thorn, foreign minister of Luxembourg, recently. "In order for us to reach a new market, new buyers in the world—and there are billions of such potential buyers, who have real needs which we can no longer find in Western Europe—we have to give them in the first place the means to take off. What is required of us is, literally speaking, an investment—but one without the usury rates which we presently have now."

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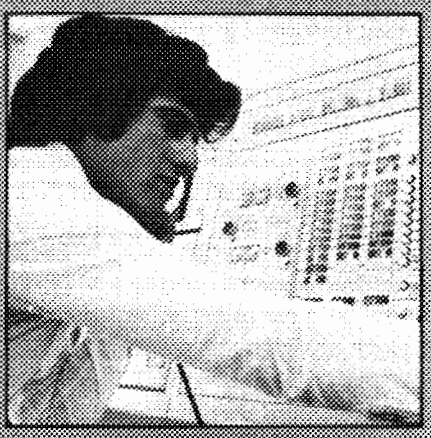

Cover: World hunger, a stubborn foe. The Presidential Commission on World Hunger has concluded that a food crisis, more serious than the energy crisis, could develop over the next few decades. In many parts of the world, especially Africa and Southeast Asia, that crisis is now. See articles on pages 2-12.

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Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

Overcoming World

A report of the Presidential Commission on World Hunger.

The report of the Presidential Commission on World Hunger represents a challenge to all Americans. I commend the members of the commission for their comprehensive analysis and thoughtful proposals.

As Chairman Sol Linowitz has noted, few of the measures recommended by the commission will be easy, and many of the most important will take time. Some will be difficult to implement quickly in the face of fiscal restraints imposed by our fight against inflation. But I agree with the commission that our national security and our fundamental values compel us to mount a growing effort to build a world without hunger. I intend to make that effort.

I have today directed the appropriate departments and agencies of the federal government to examine promptly the commission's proposals and to recommend to me both immediate and longer term action. The commission's report will be a spur to new achievement; it will not gather dust in the files.

I intend to share the commission's basic message with other national leaders in June at the Economic Summit Conference in Venice, where I will make specific proposals for collective action.

I urge Congress and all Americans to join me in a renewed commitment to mobilize the world's resources in a larger, more effective, and continuing effort to overcome world hunger.

—President of the United States
Jimmy Carter

The Presidential Commission on World Hunger has called upon the United States to make the "elimination of hunger the primary focus of its relationship with developing countries." The commission concludes that a food crisis, more serious than the present energy crisis, could develop over the next few decades. The commission's final report, containing 32 major recommendations, proposes both long-term and short-term programs to alleviate hunger.

The Commission was established in September 1978 to analyze the causes of world hunger, evaluate U.S. programs to end hunger, and recommend changes in U.S. programs and policies. Scheduled to conclude its activities June 30, the commission is required to inform the

Hunger: The Challenge Ahead

American public about hunger issues.

Regarding the recommendations, Chairman Sol Linowitz notes that "few are easy; some of the most important will take time and many will require short-term economic sacrifices and adjustments that will be especially hard to achieve in terms of inflation, rising energy costs and international crises." However, he states, "U.S. actions to alleviate world hunger must be accorded status equal to the actions needed to safeguard other aspects of our national security."

The Commission calls for actions that support self-reliant development for all countries. Citing international trade and finance as key elements, the commission recommends more flexible trade arrangements with developing countries and forgiveness of concessional debts of the poorest countries.

Noting that the world food situation is still precarious, even after several years of good harvests, the commission states that ensuring world food security must be an objective of highest priority for the United States and other food-exporting countries. As the world's principal grain producer and exporter, the United States has a special responsibility to stabilize world food prices and ensure adequate food supplies.

The commission calls for new negotiations to establish an international system of grain reserves, a U.S. emergency wheat reserve to guarantee U.S. food aid shipments, support of food reserves in developing countries and improved U.S. government policies to strengthen the U.S. agricultural system.

The commission calls for better organization of the U.S. foreign aid program, a substantial increase in U.S. financial support for development assistance programs and a complete rewriting of the PL 480 Food for Peace program.

The commission calls for an improved exchange of information between developing countries and corporate investors, and recommends a presidential meeting with American agribusiness leaders.

In addition, the commission has recommended several actions to President Carter aimed at reducing domestic hunger and poverty. The report also calls for continuing support to domestic food programs and for a national development policy to foster balanced economic growth and full employment in the United States.

On international trade, the commission recommends that:

- The United States support international negotiations to establish global commodity agreements to stabilize the export prices for such developing country products as copper, cotton and tea.
- The United States call for new multilateral trade negotiations to reduce tariffs on developing country manufactured goods exports to Western markets.
- The United States extend "duty free" treatment to developing country exports to the U.S. market under the U.S. Generalized System of Preference (GSP).
- The United States act to reduce the burden of international debt on the world's poorest countries.
- The U.S. Congress expedite federal assistance to American industries particularly vulnerable to competition from developing countries.

On corporate involvement, the commission recommends that:

- A non-governmental clearinghouse be established to encourage the exchange of information and personnel between developing countries and U.S. investors.
- The United States support current United Nations efforts to prescribe standards for investment on the part of international corporations and the developing countries.
- The president call a meeting of

Children in El Salvador are assured a balanced meal, thanks to a feeding program.

major corporate and agribusiness leaders to encourage industry representatives to provide their suggestions on ways American businesses can help in encouraging self-reliant growth and the elimination of world hunger.

On world food security, that:

- The United States strongly support efforts to establish an international system of grain reserves to provide stability of prices and ensure ample food supplies when world production is low.
- The United States establish an emergency wheat reserve to guarantee adequate supplies for the U.S. food aid program.
- The U.S. farm policy give greater emphasis to the conservation of soil and water resources and to coordinated policies supporting small- and medium-scale farms and the continued productivity of American agriculture.

On development assistance, the commission stated:

The commission's review of U.S. bilateral development programs and American participation in multilateral development organizations has shown that economic development objectives can be compromised by considerations of foreign policy and pressure from domestic interest groups. A narrow concept of national security, seen simply as military superiority, frequently conflicts with long-range economic development goals. Also, the dispersion of authority for development-related programs throughout the federal government is a continuing problem.

Inadequate funding of overseas development programs has also reduced the effectiveness of U.S. aid activities. After World War II, the United States stood out among donor nations by virtue of the size of its contribution and the high quality of its technical assistance. However, this nation's relative share of worldwide development assistance has been declining sharply over the past 20 years. Although the United States still gives more development assistance, in absolute terms, than any other donor, the United States ranks behind 12 other Western donors of foreign assistance when that sum is expressed as a percentage of Gross National Product.

The commission believes that economic development policy must become an integral component of U.S. national security policy, in order to assure that development assistance programs receive the priority and economic backing required to make them truly effective. Improving the organization of U.S. foreign assistance programs, augmenting their funding and ensuring that these funds are effectively utilized will greatly improve the ability of the United States to assist in the elimination of world hunger.

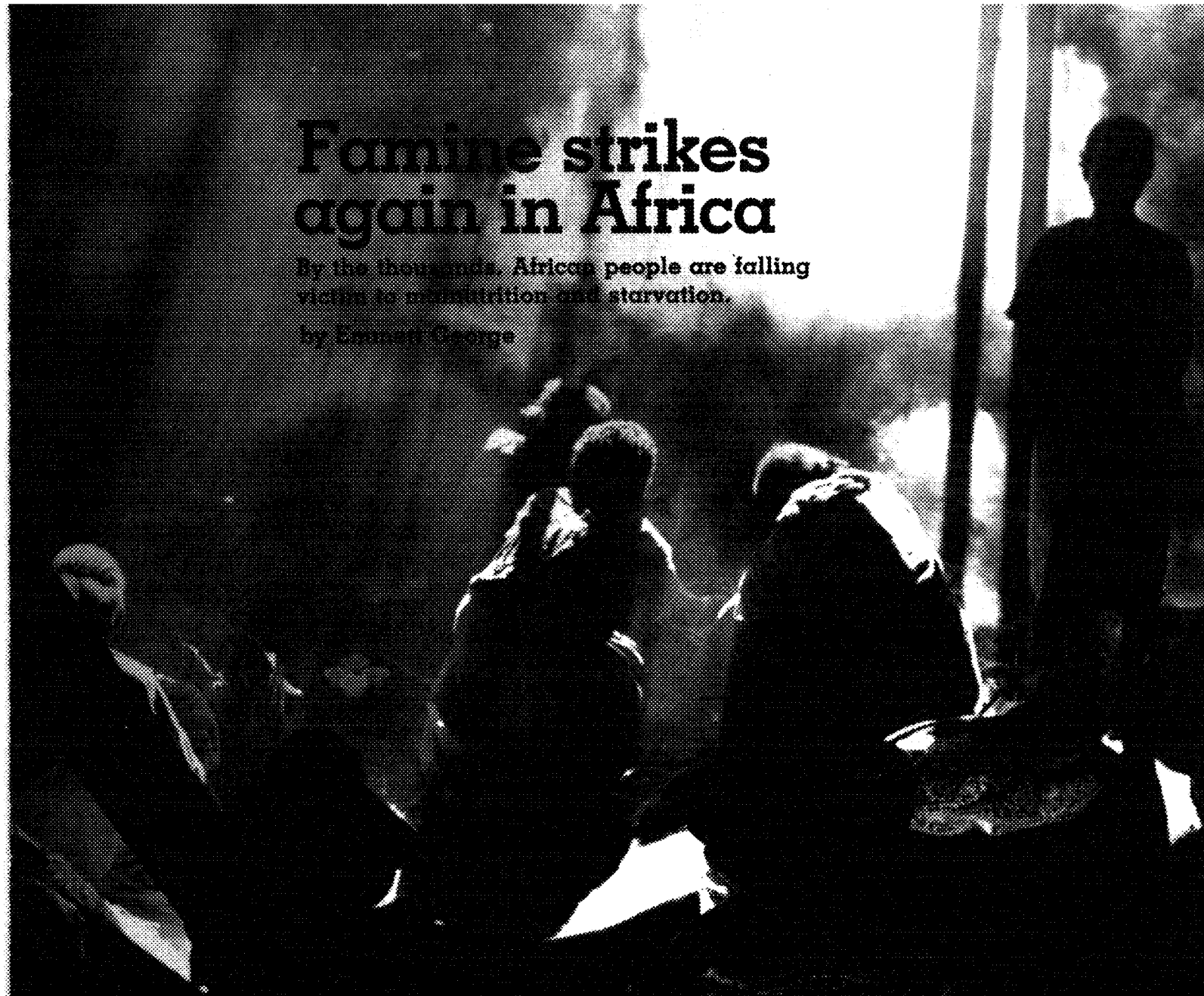
Therefore, the commission recommends that:

- The International Development Cooperation Agency be significantly strengthened and that its director be accorded cabinet-level status, so that the objectives of ending hunger and promoting equitable economic development can be more effectively integrated into U.S. foreign policy and planning.
- The United States move as rapidly as possible toward the United Nation's goal of 0.7% of Gross National Product as this nation's net disbursement of concessional development assistance.
- The Agency for International Development (AID) give greater emphasis to nutrition and employment generating programs as an integrating theme for its program activities in agriculture, health care, education and housing.
- The congress undertake a complete revision of the PL 480 Food for Peace program to give priority to its developmental objectives. □

Famine strikes again in Africa

By the thousands, African people are falling victim to malnutrition and starvation.

by Emmett George



In sub-Saharan Africa more people suffer from malnutrition than do not.

Mauritania, Chad and Cape Verde face acute food shortages. Uganda, Mozambique, Tanzania, Kenya and Zambia are having difficulty producing food, and serious balance-of-payment problems have forced their leaders to seek massive foreign food assistance. Only Nigeria, Ivory Coast and Cameroon have sustained the steady rate of economic growth necessary to underwrite their countries' rising food production and food import bills, according to a recent report by the United Nations Food and Agriculture Organization.

Analyzing the past 15 years shows that all the major developing regions have pushed up their per capita food production levels by 15%, except Africa, where per capita food production dipped by 10%. For the near future at least, the rate at which African nations can produce cereal is expected to lag behind population growth. And, according to development officials, the situation won't get better without significant outside assistance.

Africa's food shortage, fast becoming the most serious in the world, stems from a number of problems: drought, poor transportation, minimal price incentives and the political turmoil that has swept many parts of the continent. Moreover, the growing number of refugees and displaced persons made homeless by wars—estimated at 2-4 million—has increased the pressure on resources, particularly in Somalia, Sudan, Zambia, Chad and Mozambique.

Worldwide, nearly a billion people face some degree of malnutrition. Although total food production in developing countries has climbed steadily since 1970, it has not kept pace with population growth, the FAO suggests. One out of every eight men, women and children live in food-short areas of the world. "Although output in the developing countries was only 1% less than the 1978 record high, rapid population growth resulted in at least a 3.5% drop in per capita production."

For some 300,000 people in the

Karamoja region of Uganda, that statistic translates into starvation. Fighting, plus a lower than normal rainfall, has reaped disaster on agricultural production in the country. So serious is Uganda's problem that the United Nations Development Program (UNDP) is planning to airlift emergency corn from Ethiopia. The United States is financing the airlift, and plans to ship 16,500 tons of corn by road from Mombasa, Kenya, this spring.

Zambia's 5.6 million people will be eating yellow American corn this year, instead of their own variety of white corn as 102,300 tons of U.S. Food for Peace will begin arriving in Zambia, hopefully in time to avert the major famine projected for June and July. The Zambian government has projected a 220,000 ton shortfall in its corn crop this year. Zambia faces the added burden of trying to move the emergency shipments through already congested ports in Tanzania and Mozambique. Distributing the corn within the country also will be difficult because bombing attacks during the recent civil war wiped out 15 bridges connecting major roads. Zambia's food problem has steadily worsened over the past two years as drought has persisted, market prices have dipped, and delays in shipping fertilizer have dragged on.

But of all nations in Africa, Somalia probably faces the worst crisis. The constant flow of refugees from the Ogaden region of Ethiopia has swelled the camps to nearly 700,000, with an additional 500,000 displaced persons flooding urban centers. The United States has shipped 61,930 tons of food and large quantities of medical supplies, blankets and other essentials.

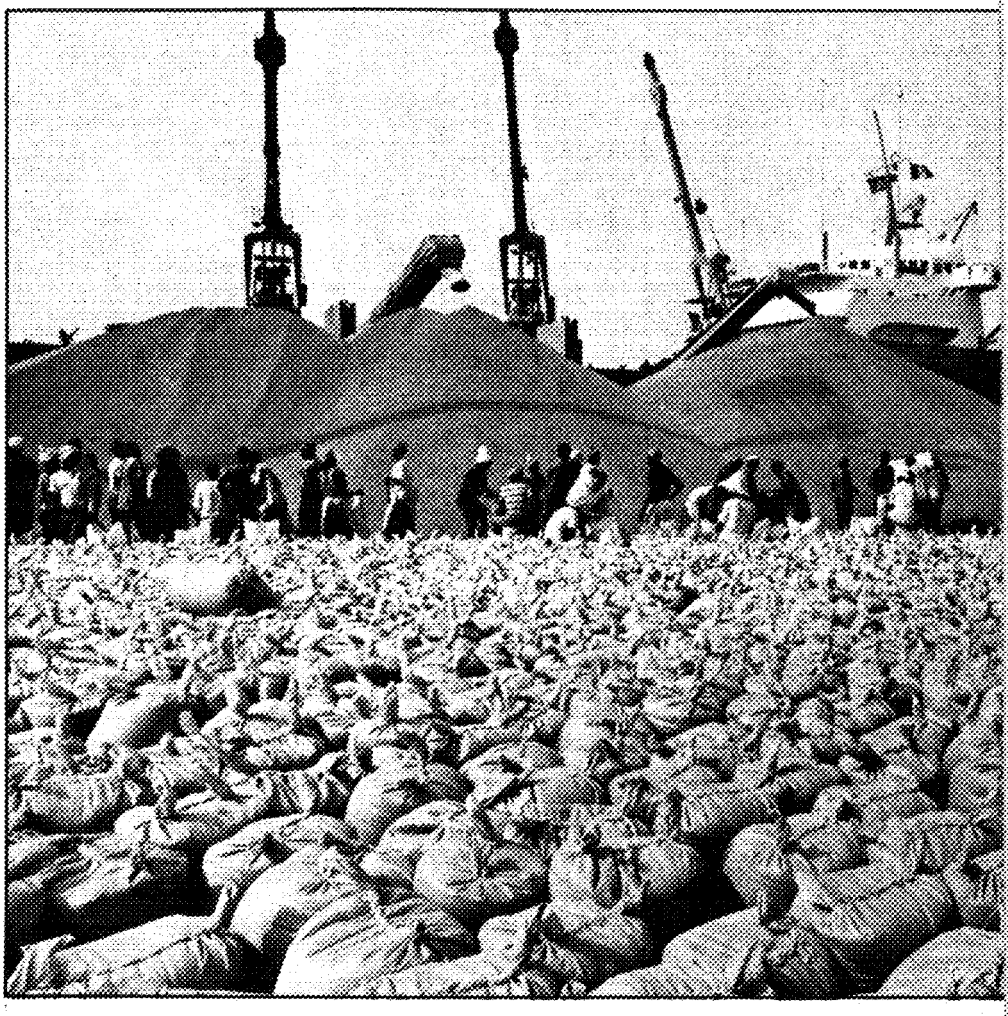
Since the early 1970s, the United States and other donors have funded food production in order to reduce the region's vulnerability to drought. This year, the Sahel region of West Africa appears much better off than in previous years. Mauritania, Chad and Cape Verde, however, have reported emergencies.

Civil strife rages on in Chad, disrupting farming; erratic rainfall last year led to a food shortage of 32,450 tons. Trouble areas such as Kanem, Lac and Longone Valley are reporting unusually high death rates among children who, because of malnutrition, are falling victim to disease. In an effort to help the people of Chad, AID has begun shipping sorghum and corn some of which is to feed Chadian refugees in Cameroon.

Mauritania has practically no fertile land—certainly not enough to feed its 1.5 million people. Mauritania depends on food brought from other countries with income earned from northern mineral mines. The Polsario War spilling from neighboring Spanish Sahara into the mining areas is depleting the precious revenues needed for food. Last December an early warning from a multidonor mission put Mauritania's food needs at 86,900 tons. Despite quick response from Canada, the European Economic Community, Holland, France, Turkey, West Germany and the United States, the country still faces a food shortage of 49,500 tons.

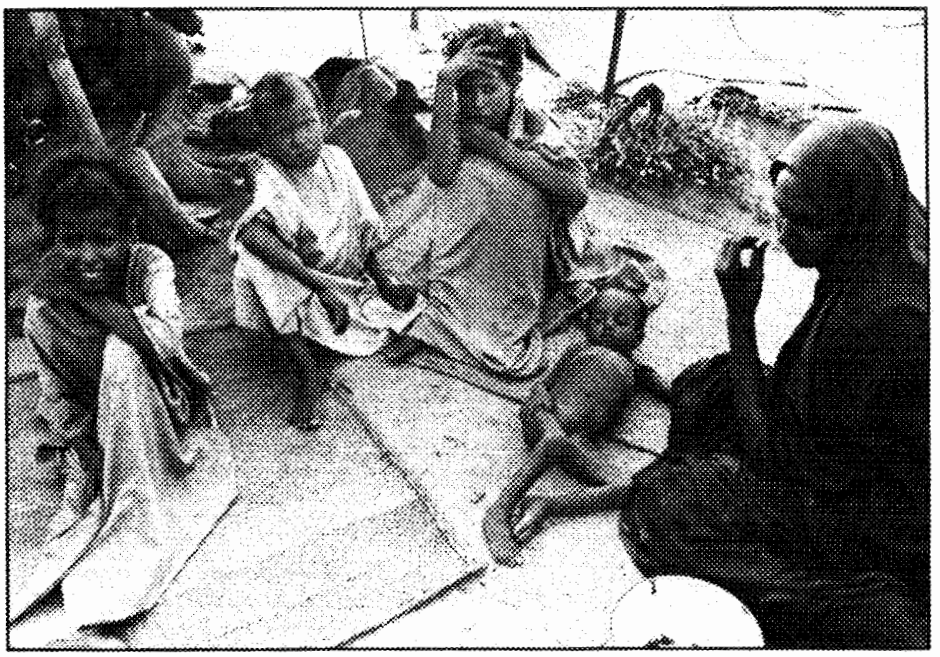
Agricultural production on Cape Verde satisfied only about 5% of the country's food needs. Despite help from foreign donors in developing irrigation systems and soil conservation, the country is faced with corn and bean shortages of 13,750 tons. Serious balance-of-payment problems have forced the government to seek foreign food aid.

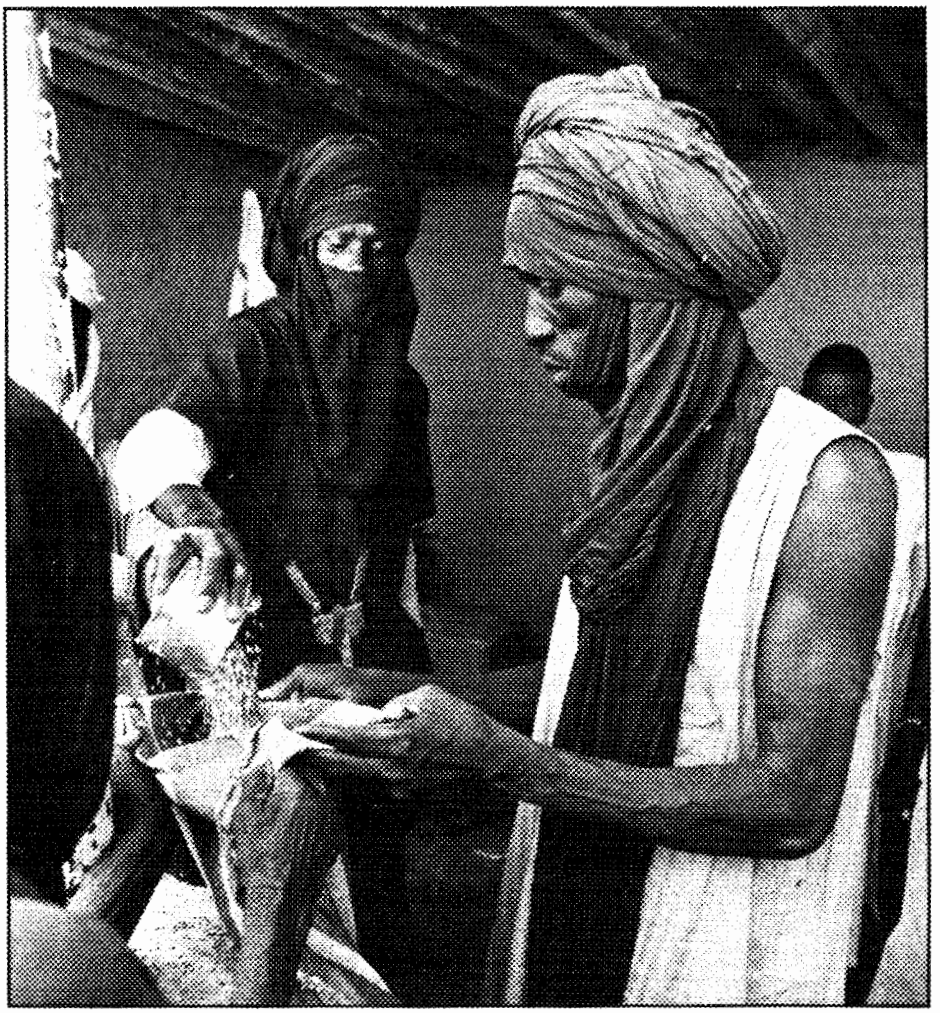
Tanzanian officials are faced with widespread rice and wheat shortages in cities and a lack of corn in the rural areas, all due to the drought now sweeping over most of

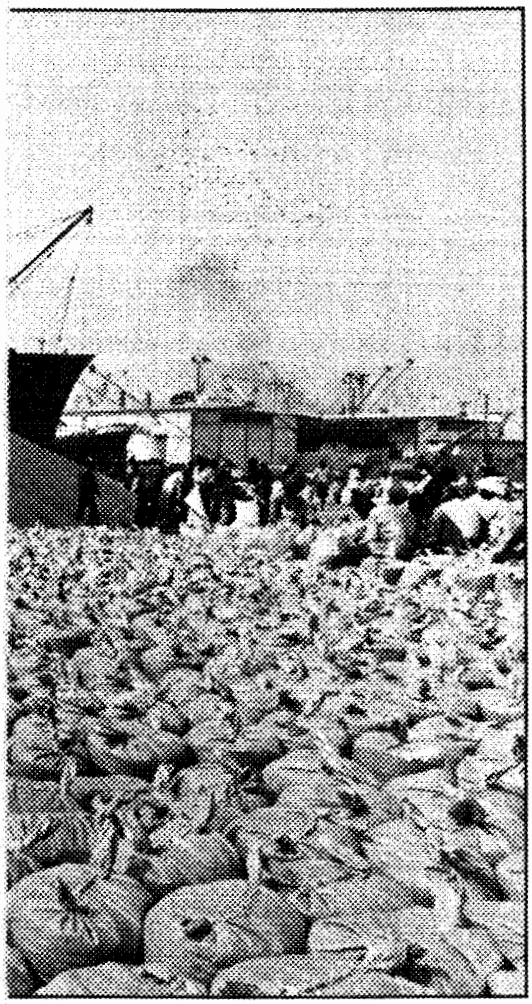


East Africa. What grains have grown have been devoured by quelea birds—pests whose numbers have reached alarming proportions. To make matters still worse, a national fuel and spare parts crunch has hamstrung transportation. As a result, Tanzania needs 78,100 tons of food if it is going to avoid famine. The United States has provided 30,800 tons of rice and is considering a new request for additional food.

"The situation in Africa looks grim," said Susan Schayes of the U.S. Department of Agriculture, who has been assessing the situation in east and southern Africa. "Kenya, Tanzania and Malawi were exporting grain until they realized earlier this year that they didn't have enough food for their own people to eat. It is a question of keeping data on what you have and what you







Clockwise from top: Africa's food shortages and the suffering of its people stem largely from drought, poor transportation and political turmoil. Many countries need massive food donations. The United States and other Western nations are responding: shipments of grain are bagged at dockside in Senegal.

FOOD FOR ALL: No. 1 Priority

The right to have enough to eat is a basic human right.

by Frances Brigham Johnson

Hunger and malnutrition are becoming pivotal issues for national leaders and developers who want to chart enduring courses to national growth and progress. More and more leaders are recognizing that material change will be fleeting if made at a cost of neglecting or ignoring pervasive malnutrition. The World Bank estimates that some 800 million people in developing countries are not able to feed themselves even minimally.

While famine and starvation in Nigeria, the African Sahel countries, Bangladesh and Cambodia have seized world headlines, widespread chronic malnutrition is far more devastating. Malnutrition shortens life, stunts physical growth and harms the alertness of at least one out of eight men, women and children on earth. Yet, strange as it seems, most of the people who are hungry and malnourished today would still be missing the food they need if food production were to double next year.

Development leaders are now recognizing that the heart of the malnutrition and hunger problem is not food production alone, but poverty. Accordingly, developers are at last focusing on what must be done to put hungry people in control of the daily food they need. They are recognizing

In order to feed their people, developing countries must set national strategies for food production, marketing and distribution, and nutrition education.

that the task calls for political as well as technical solutions.

Realizing that the food supply issue is central, the Presidential Commission on World Hunger, which recently wrapped up a two-year study, has recommended that *eliminating* hunger be made the primary focus of U.S. relationships with developing countries. This will mean a shift in U.S. policy on a number of fronts, and will include changes in trade relations, foreign investment and foreign affairs.

For AID the shift will mean assigning more weight to nutrition and national food supply as integrating themes for development programs and projects in agriculture, health care, education and family planning. AID missions already are talking with developing countries about forging development strategies based on growth with equity. AID in particular has been working for some time with developing countries to establish national nutrition strategies that link agricultural production and planning with ways to alleviate malnutrition.

Beyond its technical assistance and PL 480 (food aid) activities, AID more recently has been developing a comprehensive approach for *eliminating* hunger. This approach represents a response to the presidential commission's call for accelerated efforts to assure *adequate diets for all*. That is, AID has been grappling with finding ways for each household to grow enough food or earn enough money to feed itself adequately.

AID may provide professional consultants to Third World governments to help develop national food strategies. Policy makers will consider ways to increase food production, to improve marketing, food distribution and nutrition intervention; and to set ground rules for trade and investment. International teams made up of experts from developed nations and country planning groups will use existing data and material so that the first strategy—food—can be prepared fairly rapidly.

It is expected that the food strategy will stimulate concerted effort by all concerned government agencies, aid agencies and producers, processors and distributors of food. The food strategy, once set forth, will need an institutional base—where it will be improved and refined as time goes on.

While most countries have the basic structure to formulate and support a food strategy, they have not tied together food-nutrition policy and projects as a consistent whole. It is expected that the food strategies will take into account a variety of factors that affect food supply, such as macro-economic policies governing household incomes, employment, prices, subsidies, and amounts of food available to consumers.

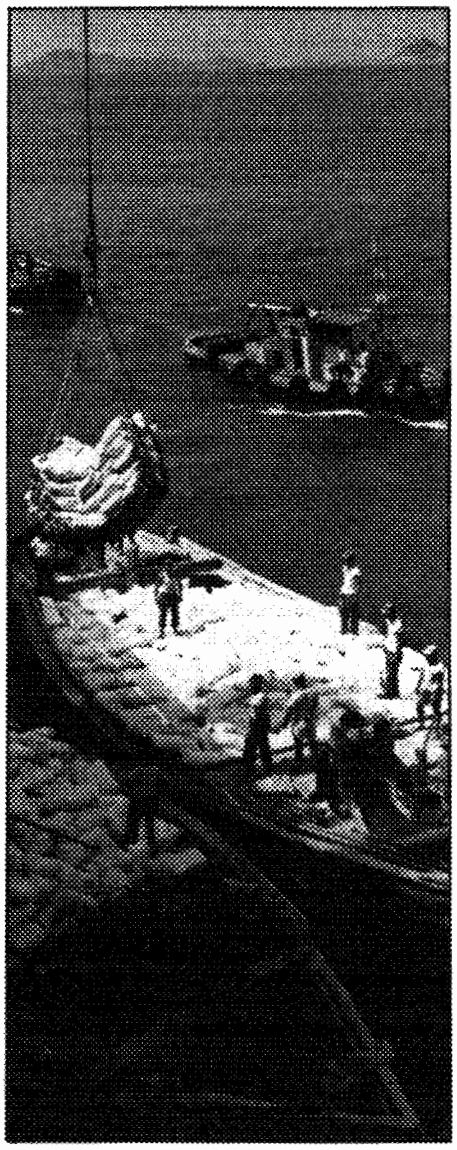
There is another approach to meeting hunger head-on. It is under scrutiny by development officials. Known as the "Tucson Model," it is dependent upon the developing country's adopting specific steps to attack its hunger problem.

The Tucson Model grew out of a meeting two years ago in Tucson, AZ, the Conference on Women and Food sponsored by AID.

According to the strategy, the developing country first must organize indigenous centers that can continuously assess and monitor hunger, and work to get government policies initiated or revised so that food production, processing and marketing actually result in more food for people. Second, the developing country must make credit, marketing storage and information facilities available to more small farmers, herders and entrepreneurs. Third, the country must install selected systems, such as feeder roads, water supply systems and central storage, where such improvements would boost food or the incomes of people facing food

shortages. Before hunger can be eliminated, developing countries must acknowledge two realities: that all people are entitled to food at costs within their means and that national leaderships must be willing to make adequate, daily food for all people a national goal.

In suggesting how the Tucson Model should be applied, Ray A. Goldberg, Moffett professor of agriculture and business at the Harvard Business School, stresses the necessity of active market development and commodity systems. According to the Tucson Model, on-going, in-country forums on food supply in capital cities, provincial centers, villages and schools will be needed to build political will for *food for all*. In these settings local people can look at the whole range of possibilities open to them. They can send their message to governors and ministries. Knowing what the people want to do to increase food supplies, developing country officials are apt to respond positively. While, under the Tucson Model, country analytic groups and policy makers can draw upon foreign consultants and technology, primary impetus for resolving hunger and income issues and for deciding what is to be done and who is to do it will come from local enterprise, reinforced by public policies and basic services.



The challenge will be to help poor countries find their own way to end hunger.

To implement the Model, AID must be ready to enlist the know-how of U.S. universities, business and voluntary agencies. Private sector knowledge and experience could be of great help in finding the solution to hunger.

AID's approach, growing out of work with the World Food Council and with a consortium of western U.S. universities, squares with the presidential commission's thinking that the solution to the economic riddle rests upon an accurate appraisal and determined attack on the sources of hunger.

Since the gap between income and expenses for food is a basic measure of poverty and hunger, the commission concludes that the most important task is to close the gap through policies that enable individuals and families to become self-supporting.

Given the view of the presidential commission that the United States has a special responsibility to lead the campaign against hunger, AID will be looked upon as leader in working with Third World countries in this regard. Since the United States is the most powerful member of the world's interdependent food systems, AID could play a critical role as counselor to U.S. agencies on trade and investment policy, credit, debt, and other issues that help determine whether poor people in poor countries will be able to feed themselves. And foreign aid, properly directed, can build strong customers abroad. From $6 billion in 1969, farm exports grew to $30 billion in 1978. For every ton of food assistance shipped, more than 20 tons are shipped for cash, an important fact for our balance of payments. Now one-third of all U.S. exports are shipped to Third World countries. As these countries strengthen their economies, they buy more American products, including agricultural products that can improve nutrition levels.

The presidential commission points out that by focusing international efforts on elimination of hunger, the United States can demonstrate a renewed dedication to the cause of human rights. For whether one speaks of human rights or basic human needs, the right to food is the most basic of all rights. Malnutrition kills—by making the victim more vulnerable to infectious diseases. Often deaths from gastrointestinal and respiratory diseases are actually the work of malnutrition.

For AID the challenge will be to help developing countries discover an attainable path for eliminating hunger. The commission recognizes that many long-range programs of hard work will be required. However, the commission concludes: "The worst aspects of hunger and malnutrition can be overcome even before more far-reaching development programs have become fully effective." The commissioners believe, and AID can demonstrate, that the outcome of the war on hunger by the year 2000 will be determined by decisions and actions well within the capability of nations and people working individually and together. Indeed, world order depends on it. □

Frances Brigham Johnson is AID's desk officer for Senegal. She was AID manager of the "International Conference on Women and Food," at the University of Arizona in 1978.

Food or fuel: The bittersweet choice

The stage is set for competition between auto-owners and the hungry poor.

by Lester Brown

The price of oil may soon set the price of food. As countries turn to alcohol distilled from agricultural commodities as a source of fuel for automobiles, more and more farmers will have a choice of producing food for people or fuel for automobiles.

The stage is set for direct competition between the affluent minority, who own the world's automobiles, and the poorest segments of humanity, for whom getting enough food to stay alive is already a struggle. Using food crops to produce alcohol will underline the global disparities in income as perhaps nothing else has.

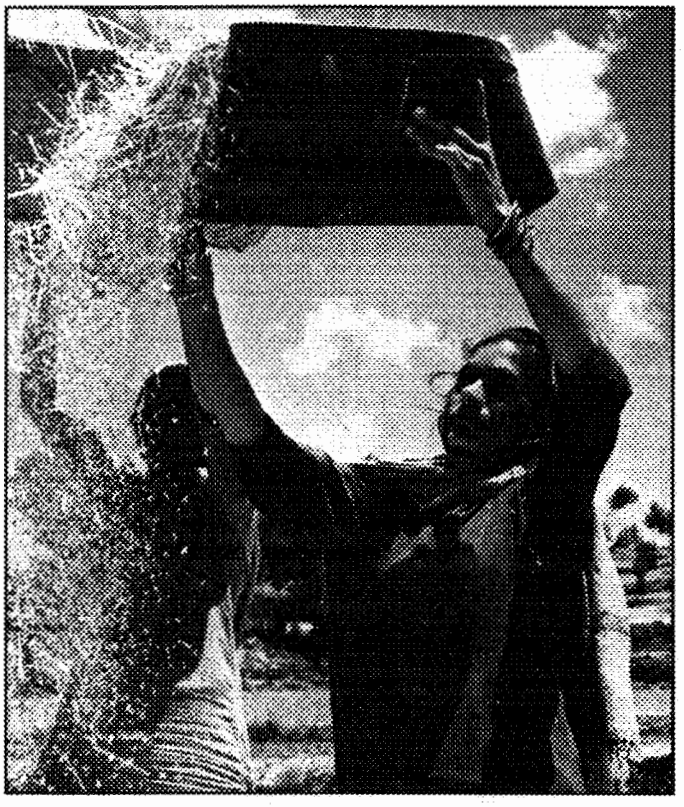
Alcohol can be produced from a variety of plant materials. Ethanol, the most attractive short-run alternative to gasoline in the 80s, is produced from the fermentation of sugar crops, mainly cassava; and all the major cereals, especially corn and wheat.

Brazil, the world leader in alcohol fuel production, may be the first to feel the impact of energy crops programs on food prices. Plagued by a mounting oil import bill, in 1975 Brazil initiated its alcohol fuel program, based largely on sugarcane. By 1979 alcohol accounted for an estimated 14% of the country's automotive fuel consumption and in 1980 it is expected to constitute 20%.

The United States also has ambitious hopes for alcohol fuel. For the mid-eighties the Administration's ethanol goal is two billion gallons—roughly 2% of gasoline consumption. Mixed with gasoline, this would yield 20 billion gallons of gasohol, or nearly one-fifth the U.S. consumption of automotive fuel in 1979. Rising gasoline prices, gasohol tax exemptions, and federal loans and loan guarantees are all expected to increase alcohol fuel production.

Other food exporters, including Australia, New Zealand, and South Africa, have either launched or are seriously considering large alcohol fuel programs. All these countries see the production of ethanol as a way to reduce their dependence on imported oil.

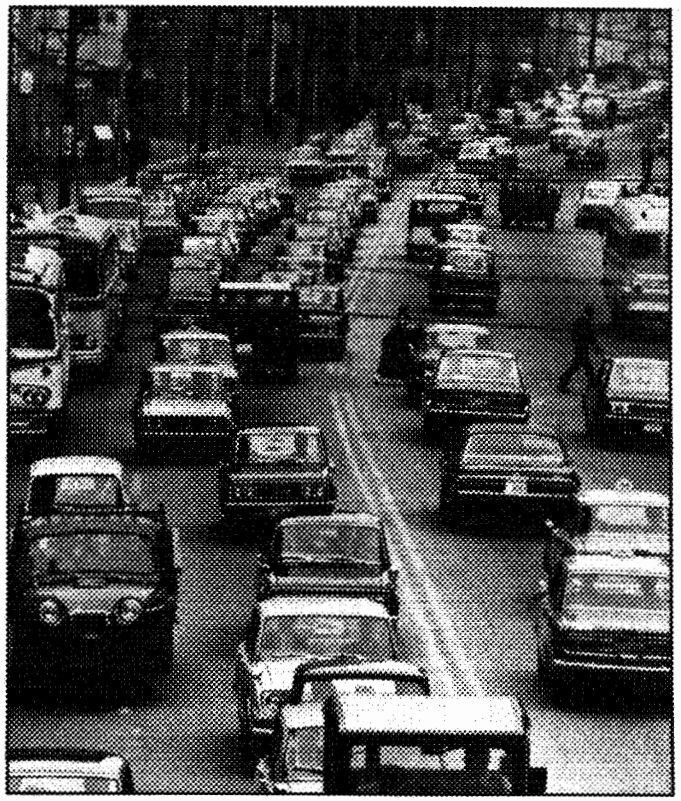
The U.S. alcohol fuel program is primarily based on the use of corn, and Australia is using wheat in its pilot project. These plans to divert food crops to the production of fuel come at a time when efforts to raise food consumption among the world's poor are losing momentum. Even without the competition from energy crops, the world will be hard pressed to avoid a decline in per capita food production during the decade ahead.



Ethanol, probably the best alternative to gas in the 80s is produced from sugar and root crops and all major cereals.

Providing food for the average person in the Third World takes roughly one-quarter of an acre of cropland per year, whereas a more affluent consumer requires nearly an acre. By comparison, running a typical American automobile entirely on ethanol from grain at the average world yield would require almost eight acres. Even widespread use of gasohol, which is 10% ethanol and 90% gasoline, would still double the annual claim of an affluent North American on the world's cropland.

If cropland is shifted to the production of fuel for automobiles, it will come at the expense of grain for export. Reaching the U.S. annual production goal of two billion gallons of ethanol by the mid-eighties would require 20 million tons of corn or its equivalent—one-



If cropland is shifted to automobile fuel production, it may well spell disaster for poor nations dependent on food aid.

fifth of the curent exportable U.S. grain surplus. In the absence of surplus production capacity, the U.S. agricultural fuel program will affect directly the price and availability of grain for scores of food-importing countries.

As the phased decontrol of oil prices proceeds in the United States over the next 18 months, the price of gasoline may well be approaching $3 a gallon by the end of 1981, a level that will enable distillers to pay even higher prices for the grain they use. As energy crops become more profitable, their production will expand until an economic equilibrium is reached between the price of agricultural commodities used for distillery feed-stocks and those used for food.

When a government's goal is to reduce oil imports, alternative measures to achieve the same end deserve to be examined. Relatively modest improvements in mass transit, for example, could markedly reduce dependence on automobiles in urban areas. Within the United States, the use of manual rather than automatic transmissions in all new automobiles would save more fuel by the mid-eighties than the ambitious alcohol fuel program is expected to yield.

For food-surplus countries buffeted by soaring oil prices and possible supply disruptions, the prospect of producing automotive fuel from crops is attractive. For food-importing countries, such a shift could be disastrous. To minimize the adverse effects of the alcohol fuel programs already launched, the governments involved should warn food-short countries of the potential reduction in exportable food surpluses so their agriculture and population policies can be adjusted. A global monitoring system that would assess the impact of energy crops initiatives on food prices would be an invaluable aid to political leaders.

A carefully designed alcohol fuel program could support food production rather than undermine it. Giving farmers first priority in the use of ethanol for tractors, farm trucks, and irrigation pumps would help ensure future food supplies when oil supplies begin to dwindle.

Agricultural wastes, food industry by-products, and cellulosic materials such as corn stalks could become important and renewable sources of fuel—alcohol fuel. The issue is whether governments can encourage the production of alcohol fuel without inadvertently launching an industry that competes directly with food production.

In a world that no longer has any excess food production capacity, the decision to channel foodstuffs into the production of automotive fuel should not be taken lightly, for it will inevitably drive food prices upward. For the world's affluent, such price increases may lead to belt tightening; but for the several hundred million who are already spending most of their meager incomes on food, continually rising food prices will further narrow the thin margin of survival. □

Lester Brown is president of Worldwatch Institute, an independent non-profit research organization in Washington, DC. His study, "Food or Fuel: New Competition for the World's Cropland," was recently released.

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Crop credit insurance could

by Susc

Take some of the risk out of farming but boost crop production at the same time—that's what many of AID's agricultural projects throughout the world are trying to do. Some of the means to this end are irrigation, pest control, high-yield crop strains, fertilizer and soil conservation. But there are limits to what these physical remedies can do.

Frequently, Third World farmers cannot get the credit they need to buy new products or to invest in improved methods, because banks and other lenders regard them as poor risks. Moreover, the farmers often are reluctant to try new ideas—and risk a crop failure. With little or nothing to fall back on, small farmers cannot afford heavy debts as they have too much to lose: their ability to feed their families, perhaps even their land.

It's a vicious circle. The subsistence farmer can't afford to take the risks, but can't afford not to.

Crop credit insurance could help farmer and banker alike. AID is testing the value of this approach through pilot programs in Panama, Bolivia and Ecuador. Project adviser Nelson Maurice maintains that this type of insurance system should make banks more willing to extend credit to small farmers, the farmers more receptive to trying new ideas, the economy healthier and agriculture more productive. Maurice, the coordinator for foreign programs at the Federal Crop Insurance Corp. of the U.S. Department of Agriculture, is assigned part-time to AID's Latin America bureau to help set up the pilot programs. Some of the work began in 1978, he notes, and the project is funded for five years to allow time to study the economic, social and agricultural impacts and to iron out the problems inevitable with a new system.

AID has obligated about $4 million to cover administration and technical assistance, while the governments of Panama, Bolivia and Ecuador will contribute up to three times as much by underwriting reimbursements for excessive crop losses that might occur. Farmers also will pay on insurance premiums.

"Crop credit is a relatively new type of agricultural insurance geared directly toward the needs of developing countries," Maurice explains. Unlike other forms of crop insurance, which reimburse farmers directly for all or some crops losses, crop credit insurance first pays off loans from banks or other lending institutions when a farmer cannot afford the payments because of crop damage. Farmers also receive some cash assistance.

"Crop credit insurance is not an attempt to guarantee farmers' income directly," he says, "but a way to increase and stabilize income by encouraging better farming practices and choice of crops and by assuring farmers' credit-carrying capacity and the solvency of lenders."

Governments have been operating all-risk crop insurance programs successfully since 1938, when Japan and then the United States started the first modern programs, according to Maurice. "Today, more than 20 countries have programs, but the successful ones are concentrated in developed countries where the large size of farms and different types of

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help farmer and banker alike.

ı Super

financing limit their usefulness as models for developing countries." Mexico is the exception, with a crop credit insurance system (referred to there as "investment insurance") started in 1961 that Maurice reports "has achieved a degree of success and contributed to the development of the nation. It's a relevant example in many ways for other developing countries, although care must be taken to develop programs suited to each country's situation."

Maurice's conversation with a group of farmers in Mexico (where half of the insured farmers work fewer than nine acres of land) shows the potential value of the insurance. "I asked them what they would do if crop credit insurance were not available," he relates, "and they gave me some answers I had expected: they would plant less land, not use credit, not use fertilizers and plant maize for consumption rather than as a cash crop." There also were some unexpected, but just as sincere, responses from the farmers who said that without the insurance "they might go to the United States as illegal immigrants, or plant marijuana and smuggle it into the States."

A Mexican government agency with some 2,000 employees administers the program, serving nearly 1 million farmers and insuring 40 crops and a quarter of all the cultivated land. Approximately 85% of these farmers have difficulty getting credit without the program.

Maurice maintains that a government subsidy is probably necessary, but can be justified because of the benefits.

Crop credit insurance is drawing increasing attention. Korea is starting a program, for example, and Venezuela is negotiating with the Inter-American Institute of Agricultural Science on setting up an insurance system. The institute also is the main contractor for AID's pilot programs, with responsibility for hiring and training local personnel in the three countries. The five-year pilot programs are intended to demonstrate how the crop credit insurance system works and to provide the economic research and analysis needed for deciding whether the programs should continue.

Ecuador recently announced the establishment of a crop credit insurance program; in Bolivia, an office has been set up ; and Panama has had a program under way for three years. "It takes several years, even 10, to get the system running smoothly and to see the rewards—increased agricultural production, better conditions for farmers and a more vital economy," Maurice cautions. "But even in three years, there have been some encouraging trends in Panama, such as a commercial tomato operation that began recently. A tomato canning plant has been built and the operators offered farmers a guaranteed purchase price. Having a crop credit insurance program, thus insuring the necessary production, helped make the lenders, farmers and suppliers more willing to take part in the venture." □

Susan Super is assistant editor of "Front Lines," AID's employee newspaper.

Pesticides: Worth the price?

There are drawbacks and dangers in pest killers; not all bugs are bad, either.

by Susan Super

Cheap and effective chemical agents introduced since World War II have produced spectacular results against pests—those unwanted, sometimes destructive, insects, weeds, microorganisms, rodents, birds and the like that threaten humanity's food supply and health.

Insecticides (DDT, for instance) got rid of insects that gobbled up or damaged crops or stored food. They also decimated populations of insects that carry disease, such as malaria, which at one point was successfully eradicated in 37 countries.

Herbicides, such as 2,4-D, boosted agricultural production by killing weeds that choke crops. In many countries, they gradually replaced hand labor and mechanical cultivation for weed control. Herbicides generally use less fossil fuel, cost less and avoid some of the soil problems (compaction, erosion, loss of moisture) that may accompany older methods.

Hundreds of new compounds have followed since the 1940s, as production of pesticides and dependence on them have mounted rapidly. Some $8.7 billion was spent worldwide on pesticides in 1978.

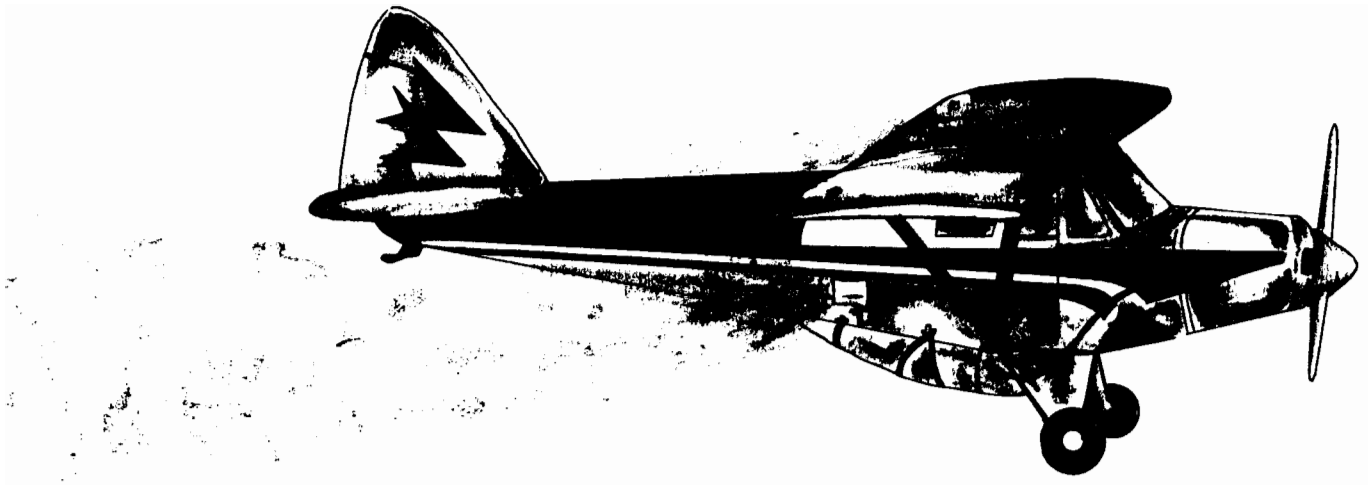
The United States (which accounts for one-third of the pesticides applied worldwide) in 1977 made 3,000 times the amount of synthetic organic pesticides as it produced in 1951 (1.4 billion pounds vs. 464,000), exporting about a third.

Pesticides are no longer cheap, adding to the financial burden on farmers throughout the world. An average 10% price increase for U.S. pesticides is expected in 1980. Since 1970, pesticide prices have gone up 54% in the United States, although the increase is much slower than other agricultural "inputs" (fertilizer, machinery, fuel, feed, seed) at 128%.

Money, however, is not the only price people pay for using pesticides, as concern has grown over dangers to public health and the environment. The World Health Organization estimates pesticide poisonings at 500,000 a year.

Harder to predict and deal with are the long-term hazards of chemical compounds. Residues may persist in the environment and the food chain for years without breaking down, contaminating water, meat and crops and sometimes building beyond acceptable levels in humans, fish and domestic and wild animals.

An overkill attitude toward pesti-



cide use in agriculture ("if a little is good, then a lot must be better") hastened the arrival of resistant pest strains. Thus, many pesticides are ineffective by the time they have been fully tested and certified for use in homes and in public health programs where people may be exposed to them 24 hours a day.

The Food and Agriculture Organization of the United Nations reported in 1977 that 364 insect varieties, including some important agricultural pests, had become resistant to pesticides—double the number 10 years before.

The resurgence of malaria in Asia, Africa and Latin America can be partly attributed to the evolution of mosquitoes resistant to DDT and other insecticides. WHO endorsed a massive campaign in 1955 to eradicate malaria by using DDT against mosquitoes, which dramatically cut the incidence of the disease. But as control programs lapsed or were carried out improperly, insects became resistant and malaria parasites unaffected by drugs appeared. WHO now advocates a malaria strategy using a mix of traditional and new controls, not only pesticides: eliminating mosquito habitat by measures such as filling, draining and cleaning ditches; biological controls, as in stocking ponds and streams with mosquito-eating fish; and new drugs and vaccines. Keeping a jump ahead of adaptable pests has often meant replacing a relatively safe, cheap compound with a pesticide that's expensive and more toxic, requiring complicated, costly safety measures.

Agricultural experts generally agree on the need for pesticides to protect food production and health, but insist on the additional need to control pesticides for the protection of people and the environment.

A recent Council on Environmental Quality report asserted that in spite of advances in chemical control and the 10-fold increase in chemical pesticides used on U.S. cropland during the past 30 years, annual crop losses from all pests appear to have remained constant, with a decline in losses caused by weeds but a doubling of losses to insects. One factor is the trend toward planting a single high-yield strain of a particular crop over a wide area, rather than a diversity of strains, so that losses are widespread if the strain is susceptible to pest attack.

What is the proper role of pesticides? Are there alternatives? Integrated pest management (IPM) is gaining ground as one way to assure stable crop production and control pests at a level where they do little economic damage, while minimizing hazards to human beings, animals, plants and the environment. President Carter's 1979 Environmental Message cited it as "a systems approach to reduce pest damage to tolerable levels through a variety of techniques, including natural predators and parasites, genetically resistant hosts, environmental modifications and, when necessary and appropriate, chemical pesticides. IPM strategies generally rely first upon biological defenses against pests before chemically altering the environment."

This approach could cut U.S. pesticide use by up to 75% on some crops, reduce losses to pests before harvest by 50% and result in significant savings for overall pest control, according to a study by the congressional Office of Technology Assessment.

Since 1971 the U.S. Department of Agriculture's Cooperative Extension Service has been demonstrating this approach on a variety of crops and cattle feedlots. For almost every crop trial in more than 30 states,

pesticide use dropped sharply but yields and quality were maintained and profits to farmers went up.

Mosquito control districts in California have used integrated pest management for several years, cutting pesticide use by 90%, reducing costs for labor and material and almost eliminating environmental pollution while keeping good mosquito control. Encouraging results have also been reported for integrated pest management in forestry and urban uses.

AID and pesticides

Developing countries are a rapidly growing market for products to boost agricultural productivity, such as fertilizers and pesticides.

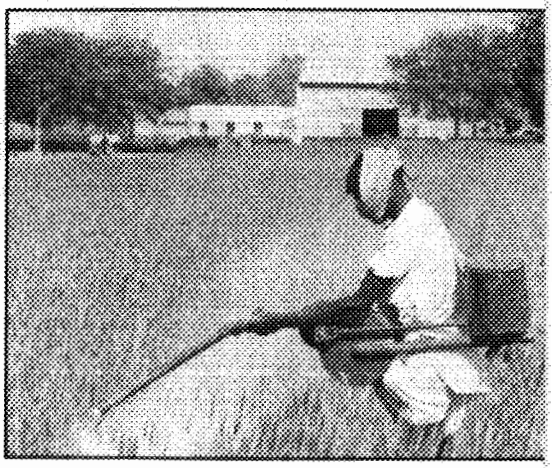
But conditions in the Third World pose serious drawbacks for the use of pesticides that potentially endanger people using them and crops. Because few people can read, or read well, directions frequently are not followed correctly; overuse of pesticides is a chronic problem, hastening the development of pests resistant to pesticides and thus lowering the chemicals' effectiveness for public health use; countries lacking adequate safeguards may import pesticides banned elsewhere; and pesticides considered safe in a country like the United States (where they are applied by trained, licensed applicators with sophisticated equipment and safeguards) may be hazardous in a developing country.

AID's official policies and procedures on pesticides (most recently revised in 1978) emphasize technical assistance and research to promote integrated pest management using all available tools, rather than relying solely on pesticides. Other controls in agriculture, for example, are crop rotation, timing of planting and harvesting, sanitation, cultivation, plant varieties resistant to pests, and use of predators, parasites and microorganisms that attack pests.

"There's been a radical change in the Agency's approach to pesticides in the last few years," observes Frederick Whittemore, environmental coordinator for the Agency's agriculture office. He acknowledges that "not everybody understands the reasons for the changes," which help the Agency act more responsibly. Except in emergencies, pesticides are no longer provided to countries under AID's Commodity Import Programs, but only for specific projects after the proposed uses are carefully reviewed.

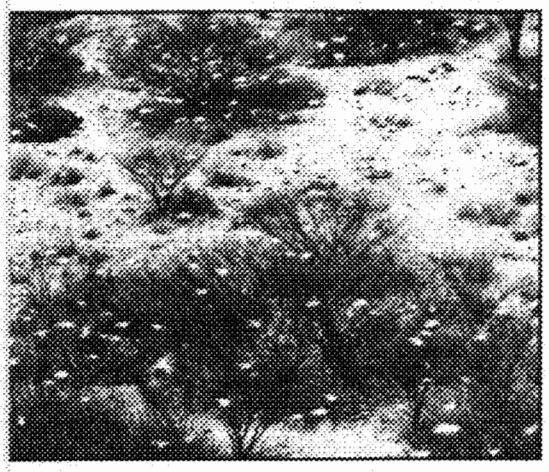
Some 35 to 40 requests from missions for agricultural pesticides have been reviewed in the last two years under AID's environmental review procedures. Usually, AID's agriculture office comes up with alternatives to the pesticides on the proposed list that would do the job, but with less hazard to people and the environment. A technical adviser often goes to the country to examine the crops, pests and diseases first-hand to recommend methods best suited to the particular conditions. Under an AID contract with the University of California, Berkeley, specialists can be in the field in days. Pesticides that AID recommends are usually registered with the Environmental Protection Agency, which may restrict their use. DDT, for example, is registered only for public health and a few other applications. Thus, it's effectively banned from widespread use in the United States, since it is not permitted for agriculture.

"Registration with EPA does not guarantee that a pesticide will be safe everywhere," Whittemore points out. Parathion, he adds, is a highly toxic pesticide that, although used extensively in U.S. agriculture, has been banned by other countries (especially developing countries) out of fear that the directions for applying it safely wouldn't be followed closely enough. Another serious worry in some developing countries is the uncontrolled and dangerous production of "fly-by-night" operators. They buy formulas from legitimate pesticides companies, dilute them or add additional chemical, and then relabel the compounds and put them on the market.



"Pesticides may appear to be the simplest, easiest solution to getting rid of pests," he notes, "but that's misleading." Whittemore has worked with pesticides for 40 years, with the U.S. Army, World Health Organization, Food and Agriculture Organization and EPA before joining AID in 1976. His experience has reinforced a healthy respect for what the compounds can accomplish—and his extreme caution. "It's very important to know the pest, crop, pesticide and, above all, the people who will apply it," he stresses, warning that "little is known about the long-term effects of many of the newer pesticides—there is probably as much literature on DDT as on all the hundreds of other compounds combined."

Pesticides have a definite role in protecting food supplies and cutting the incidence of disease, he continues, "but there's a 'catch 22'—pesticides may get rid of one pest



Top left: Indian workers apply pesticide to a field of rice. Bottom left: A swarm of locusts settles. Above: A malaria eradication team member arms for battle.

only to make room for another; or they may work well until resistant strains develop; or the pesticide may work well for one crop, only to create problems elsewhere."

In Central America, huge amounts of pesticides have been used to protect the valuable cotton crops. However, high pesticide residues have turned up in food crops and meat intended for export, and the United States has more and more often rejected the products. A recent Government Accounting Office report recommended even stricter U.S. standards.

DDT's overuse in agriculture has led to resistant mosquito strains in some areas, and consequently malaria is returning to many of the countries in the region.

AID's Bureau for Latin America and the Caribbean recently hired a regional pest management specialist, Eduardo Trujillo from the U.S.-based Consortium for International Crop Protection. Trujillo is helping make some headway on these problems in Central America by giving technical assistance on crop protection as well as the management of pesticides. In keeping with the Agency's pesticide policy, Trujillo will be putting special emphasis on the use of non-chemical means of pest control.

His arrival in Central America in January was particularly timely as the region is faced with a number of severe pest and disease problems in critical domestic and export crops. For example, coffee rust (a fungus) is threatening the livelihood of large and small coffee producers. Trujillo, as the consortium's representative in the region, is promoting cooperation and coordination among U.S. and Latin America personnel concerned with crop protection. With the support of the U.S. ambassador in Guatemala, he met recently with coffee, beef and cotton producers, commercial fishing interests and pesticide manufacturers and importers to discuss the relationship between pesticide use, food exports and human health. Trujillo also held training sessions for Panamanian government forestry technicians emphasizing the proper use of pesticides for fast-growing trees that will be used to reforest areas in the Panama Canal watershed.

Studies conducted by the Central American Research Institute for Industry (ICAITI) for the U.N. environmental program reveal that inappropriate use of pesticides on non-food crops already is having serious negative effects on the quality of food crops used in the region and for export. This study also revealed that small farmers and their families were affected by airborne spray drift of pesticides, and beef production in adjacent areas was also impaired.

Bob Hechtman, acting director for the Regional Office for Central American Programs, reports this technical advisory service has been well received by Central American officials, farmers and scientists who have shown increasing concern over the consequences of misuse of pesticides. Although some of the countries have national programs and research centers, consistent standards on pesticide use for the region are lacking. AID is considering a project to strengthen institutions and help develop standards and methods for detecting pesticide residues and controlling pests.

Under a separate cooperative agreement with the Policy Science Center Inc. of New York, pesticide specialists will visit Latin American countries to gather information on appropriate means of managing the manufacture, container labeling and application of pesticides. Robert Otto, AID's environmental coordinator for Latin America, cites World Health Organization reports as many as 500 fatalities a year in Central America from mishaps or carelessness in applying pesticides as the basis for the bureau's high priority on this project.

Another pesticides adviser recent-

ly visited countries in the Near East, while the Asia bureau is also considering an adviser for the region.

"AID's efforts here should serve as a model for the development of sound environmental policies and procedures in other areas of the Agency's activities," suggests a report by the Natural Resources Defense Council. "There is an unfilled and growing need in developing nations for assistance in safe and effective pest control."

Observes Whittemore:

"People in the developing countries want—and need—the pesticides. They can get them, with or without the help of AID or other development assistance agencies. They are using them, not always properly and sometimes with serious consequences."

In 1975, AID was sued by four environmental groups over its financing of pesticides to developing countries and the use of these products in AID-funded projects, without prior environmental impact statements. In partial settlement of the lawsuit, AID prepared an environmental statement on its pest management program and revised policies and regulations on pesticide use.

More pesticides are being used by developing countries than ever before, however, and Agency officials emphasize the need for technical assistance and integrated pest management to ensure they are used safely and effectively.

From 1969 to 1974 (before the lawsuit) AID financed the export of some $17 million worth of pesticides a year, which accounted for close to 6% of all U.S. pesticide exports but still only 12% of the pesticides the United States exported annually to developing countries. With the changes during recent years, the Agency now finances fewer pesticides and those only for projects. In fiscal 1979, that amounted to some $8.3 million in pesticides, with the large majority going to malaria control. Thus, AID's programs and policies affect only a fraction of the pesticides going to developing countries.

Pesticides that cannot be used in the United States because they lack EPA registration can still be produced and exported by U.S. firms. Whittemore stresses that countries should be alerted to the possible dangers of these products and the need for careful monitoring.

He considers integrated pest management a promising approach for developing countries, adding that a report on AID's activities in that area is being combined with reports from other U.S. agencies by the Council on Environmental Quality for submission to the President by June 30. "Pesticides in many cases are the best way to control pests," he points out, "but there are ways to moderate their use and frequently there are alternatives."

Perhaps 40 or 50 insects may be associated with a crop, he explains, some of which are beneficial. Only a few "key pests" cause enough damage to justify the cost of controls (such as pesticides or other methods). That is called the "economic threshold" in integrated pest management. Care must be taken so that treatment to remove key pests does not just open the way for other (secondary) pests. Whittemore cites the brown planthopper, which became a serious problem in Asian rice crops once the parasites that used to keep the insect under control were removed. Biological controls could help. The International Rice Research Institute has done promising research on parasites and predators of the planthopper, which may have the added advantage of attacking the larvae of malaria-carrying mosquitoes.

In spite of the current interest in integrated pest management, Whittemore says it is hardly a new concept. Demonstrations in agriculture, forestry and public health in the United States over the years have shown its benefits. A U.S. Department of Agriculture report recently noted that some cotton growers reduced the number of insect sprays 50% by following the advice of "pest detection scouts" who check fields to measure pest populations and determine the best time for applying pesticides. This method could benefit areas like Central America, where doses of pesticides on cotton are endangering other food crops. Whittemore feels that integrated pest management, which depends on careful monitoring, is especially suited to labor-intensive farming in developing countries.

"There's more interest in the approach now than a few years ago," Whittemore comments, "but obstacles remain. Farmers in the United States and other countries don't want to take the risk of something new, even when pilot programs have been very successful. They still see pesticides as a form of insurance—a 'sure thing.' Getting the word to farmers on alternatives is difficult, especially since they get most of their pest control advice from pesticides salespeople. Other problems are the shortages of people trained in these techniques and unnecessarily high standards we set for insect fragments in food and 'cosmetic' appearance of fresh fruits and vegetables. Not all bugs are bad, and a few more ground-up insects in cereal wouldn't be harmful. The price we pay for unblemished produce—in terms of pesticides and environmental damage—may be much higher than we think." □

Growing Together: Peace Corps and AID

The 80s promise understanding, shared goals.

by Kay Chernush

They were bright, young and idealistic—pioneers on the New Frontier. The State Department gave them orientation and ordinary green passports like ordinary Americans going abroad. The White House, with much fanfare, gave them a send-off, which was only fitting since they were the first contingent in John F. Kennedy's cherished Peace Corps.

When the first volunteers stepped off the plane in Accra, Ghana, in 1961 and sang Ghana's national anthem in Twi, the local language, it marked a departure for American diplomacy. In varying degrees, the young Americans could speak the local language. Intensive training had prepared them to accept different customs. They were ready to live simply, in the same manner as their new friends and co-workers. There would be none of the special privileges—no commissary, no hardship bonuses, no air-conditioned houses—that cushion the diplomats' lot and set them apart from the local culture.

"We saw ourselves as very different," says Kelly Kammerer, an early volunteer in Colombia, later a Peace Corps staffer in Washington and now AID's deputy general counsel. "It was ingrained in us to avoid all contact with AID people. We were encouraged not to have joint participation and joint programming. There was always the feeling that AID was living high off the hog and not being culturally sensitive."

In the early days, there was a lack of regard for AID. Peace Corps was protecting its virginity.

—Mack Taylor, AID recruitment chief, former Peace Corps director in Liberia

Paula Goddard, deputy coordinator for AID's Women in Development office, taught African history in Kenya for the Peace Corps about a decade after Kammerer. She remembers having a similar "stereotyped" view. "It was really a holier-than-thou attitude of those of us in the front lines. The way we were living and working made us feel superior."

For their part, AID people largely reciprocated the feeling—if they thought about it at all. "A bunch of kids," was how they viewed the Peace Corps. "What do a bunch of kids know about development?"

While individual relationships sometimes rose above such sentiments and a certain amount of informal cooperation took place between the two agencies, a "them-and-us" attitude persisted into the 1970s. "Peace Corps people always viewed themselves as pure and undefiled," observes Jim Kelly, who was on that first plane-load of volunteers going to Ghana. "AID people saw themselves as wise and having all the technical competence. Let's face it, both views are somewhat short of reality."

Kelly now directs AID's programs for the Sahel and Francophone West Africa. Times change, "the kids" have grown up and nearly 20 years after the Peace Corps' founding, a sizable number of its former volunteers and staff members are working for AID.

A survey of AID's overseas missions and Washington bureaus reveals the extent of the Peace Corps connection. Out of nearly 3,700 AID employees (excluding those hired locally in foreign countries), 462 have had Peace Corps experience, either as volunteers or staff members—or both. In Washington, they are found in nearly every bureau and at all professional levels, from newly recruited interns to the new deputy administrator, Joseph C. Wheeler, who in 1961 helped set up Peace Corps operations in the Near East and South Asia. More than 170 hold such jobs as desk officers, program designers, capital development and loan officers, policy planners, financial and personnel managers, technical experts, lawyers and economists. Three of the Agency's major bureaus are headed by former Peace Corps staffers.

Not surprisingly, given the Peace Corps bias in favor of cross-cultural involvement, an even greater number work overseas—287. In Costa Rica, former Peace Corps people make up 53% of the mission staff, including Director Stephen Knaebel and Deputy Mary Kilgour. In Cameroon there are more than 40%, in Jamaica 28%.

From my experience in rural Africa, living at the same level as the people I was working with, I got a perspective that I wouldn't have gotten if my standard of living was higher.

—Alvin Newman, AID International Development Intern, former Peace Corps volunteer in Ethiopia and Liberia

In addition, an undetermined number of former Peace Corps volunteers served with the International Voluntary Services (IVS), a forerunner of the Peace Corps, and a veritable shadow army of former Peace Corps hands work for AID contractors and voluntary organizations such as CARE, World Education and Save the Children. Says AID

Controller Doug Stafford. "The Peace Corps is a better school tie than Harvard."

Stafford joined the Peace Corps during the 1960s, taking a two-year leave of absence from a well-paying job as an IBM marketing representative. As with so many others, the experience radically changed his life. "I was highly successful," he observes with a nonchalant shrug, "and I asked myself—is this all there is to it? I wanted to work in the Peace Corps because it was a noble cause." After helping install a computer system in Peace Corps headquarters, he was asked to be deputy director in Liberia. "Where's that?" he remembers asking. "That's the way this romance started."

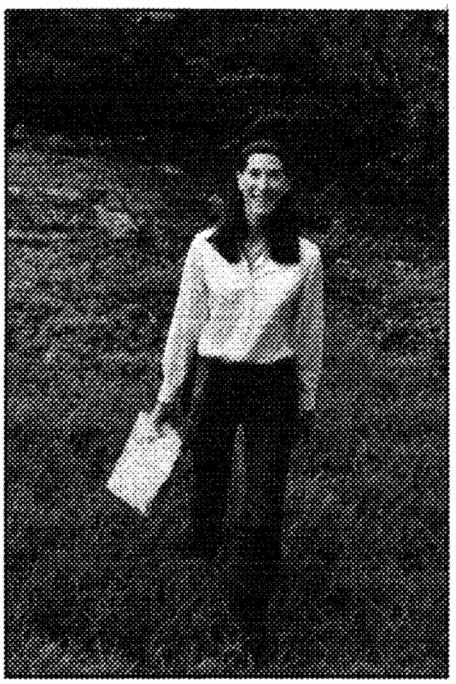
Part of the growing Peace Corps connection at AID stems from AID's intern program, which recruits and trains professionals. Nearly half of the interns in recent years have been former Peace Corps volunteers. AID recruiters, in fact, rate Peace Corps experience as a definite plus, particularly when combined with an advanced degree. Others in AID, aware of charges of cultural insensitivity and bureaucratic formalism, believe the "practical feel" and language skills that ex-Peace Corps people bring with them are "the best thing that's happened to AID in years."

"As I look at AID circa 1960 as opposed to 1980, there's a world of difference, not only in what we're doing but in the sensitivity involved," remarks Calvin H. "Hank" Raullerson, who directs AID's cooperative development programs. While AID's mandate is far broader than Peace Corps', encompassing such different aspects of bilateral economic assistance as the Food for Peace program, disaster relief, development loans and balance-of-payment support, there is more emphasis now on technical assistance in agricultural production, rural development, health and education.

Peace Corps also is not a monolith and is continuing to evolve in response to changing conditions and needs in the Third World. Having pioneered a one-on-one, grass-roots approach to development, Peace Corps has long had to prove itself as something more than a rewarding cross-cultural experience for Americans. Volunteers are no longer "parachuted" into remote areas and told to "find something useful to do," as sometimes happened in the early days. There is a more rigorous matching of volunteers' skills with host country needs and a recognition that a development assistance program today is acceptable only if it furthers development.

"We have all learned," says Robert MacAlister, whose Peace Corps memories include "being a guinea pig" for volunteer training in Puerto Rico back in 1962. Today, working in AID's Africa Bureau on special development problems like renewable energy and appropriate technology, he finds himself drawing on his Peace Corps background. "The whole appropriate technology thing comes out of Peace Corps experience, what has been learned at the grass-roots level."

Like many others at AID, both with and without a Peace Corps past, MacAlister firmly believes in collaboration between the two agencies and would like to see more of it. "I'm in a position to keep promoting that in project design," he notes. "As new projects evolve, more volunteers will be working in them."



Paula Goddard taught in Kenya as volunteer. Now she's AID's deputy director for Women in Development.

Indeed, despite the old attitudes, there has always been some cooperation between AID and the Peace Corps in the field. MacAlister, for example, while serving as Peace Corps director in Chad in 1968, helped start a joint wells project that continued until growing civil strife forced the evacuation of Americans earlier this year. According to Raullerson, a Peace Corps director in Kenya and later head of the corps' Africa region, there was never any stated policy about not working with AID. But any cooperation tended to result from *ad hoc*, informal agreements and depended on the type of project and the personalities involved.

The difference with AID now and AID then is the basic human needs strategy. AID has refocussed . . .

—Pat Baldi, acting deputy director, AID's Office of Population, Peace Corps volunteer, Brazil 1966-68

"In Kenya, our program lent itself to working with AID and we took advantage of that," Raullerson recalls. "We had Peace Corps volunteers who received quite a bit of assistance from AID and that's true of some other countries, too. But the record is probably spotty."

Special funding programs, which were limited to small grants and didn't involve any red tape, were one way AID provided support to Peace Corps in the early years—and still does. During the 1972 budget crunch, AID even came to Peace Corps' rescue with $2 million for volunteer living allowances. But what troubled many observers was

that Peace Corps seemed to have all the people resources and AID had all the money, and there was no mesh between them.

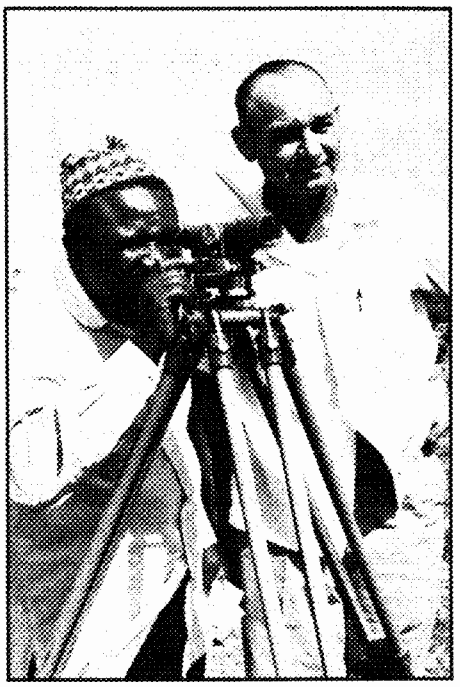
With the convergence of Peace Corps and AID objectives and the changes in attitude, cooperation becomes both logical and necessary. "Particularly at a time with so many limitations and budgetary constraints, we have to find more ways to ensure cooperation," says Alex Shakow, AID program and policy coordination chief. In fact, two years ago the two agencies signed an agreement to do just that. More recently, AID Administrator Douglas J. Bennet Jr. and Peace Corps Director Richard Celeste sent out a joint cable to overseas posts urging renewed efforts at collaboration.

Of course, it's still possible to find some among AID's "old guard" who do not consider Peace Corps a serious development agency. One person, upon learning that Peace Corps would be going into Bangladesh, reportedly sniffed, "It will be fun for the kids but a mess for Bangladesh." Another senior level official, while recognizing some of Peace Corps' contributions, said, "Development is more than having a good heart and good will."

When I came here in 1975 with my preconceived notions, I was very impressed . . . AID people at different levels really know their business.

—Kelly Kammerer, AID Deputy General Counsel, former Peace Corps volunteer in Colombia

Far more common, however, is the view that each agency has something to offer to development. "Peace Corps optimizes what the non-specialist can produce," observes Paula Goddard. "At AID, knowledge is deeper but narrower. Both approaches are appropriate for their particular mandates, but both suffer the lack of the other."



There was limited cooperation between AID and Peace Corps in the 60s and 70s. AID was seen as concerned only with the technical aspects of development.

The general feeling seems to be that despite real difficulties in meshing different styles and program requirements, the two agencies share a common purpose and the strengths of one complement the strengths of the other. Jim Kelly sums it up when he says, "We have to focus on how we should come together to speed the development process rather than on differences of approach and differences of instruments used."

Jim Kelly, who now directs AID's programs for the Sahel and francophone West Africa, was part of the first contingent in John F. Kennedy's cherished Peace Corps.

Perhaps because AID is so much bigger, it bears the onus as a cumbersome, unfeeling, inflexible, paper-logged bureaucracy while Peace Corps manages to preserve its image as creative and flexible. But, in dozens of interviews, former Peace Corps people working at AID have overwhelmingly praised the professionalism they find there. Quite a few concede that their earlier perceptions of AID had been "negative and uninformed." Desk officer Celeste Robertson, who served as a volunteer in the Ivory Coast, finds "just as much commitment in both agencies, and in both institutions the paperwork can get you down."

Many suggest that Peace Corps' main contribution may ultimately lie in the cultural sensitivity and broader world view that former volunteers and staff bring with them to future careers, particularly in a place like AID. In fact, this view is embodied in one of the Peace Corps' goals—namely, to promote better understanding on the part of Americans of the peoples of the developing world. At AID, while they can and do differ on specific policies and programs, the Peace Corps people tend to share similar values, a people-oriented approach to development problems and a view of the world shaped by their experience among its poorest and most deprived citizens.

A certain amount of tension and poking fun between the two agencies may be inevitable and even beneficial, in that it furthers an esprit de corps. This was certainly true of the Peace Corps during the early days, when people were afraid of being swallowed up by AID. Now, however, attitudes are shifting. As one AID staffer puts it, "Development is so hard, so complicated, there's room for more than one approach. □

Kay Chernush is a photographer-writer in AID's Office of Public Affairs.

Doing more with less: The future of technology in the

Dwindling resources and mounting debt force developing countries to seek modern

by William L. Eilers

A new profession of futurists has emerged in our society. The more successful are invariably optimists, who proclaim that we live today in the best of all possible worlds. The pessimists fear that this is true.

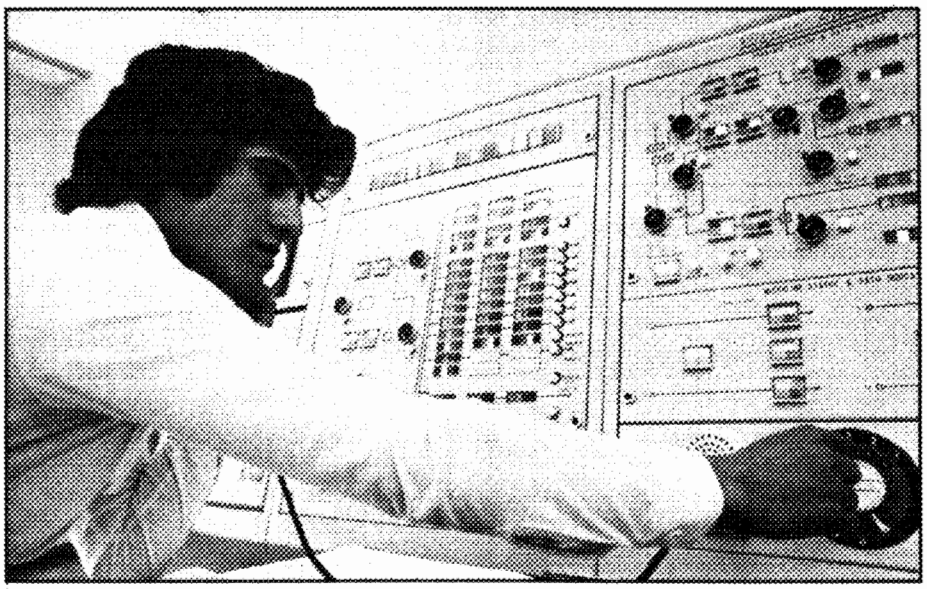
The tumultuous events of late—Iran, then Pakistan and Libya, plus the famines in Cambodia and Somalia—have many of us asking just where we went wrong and what we can do about our position in the world.

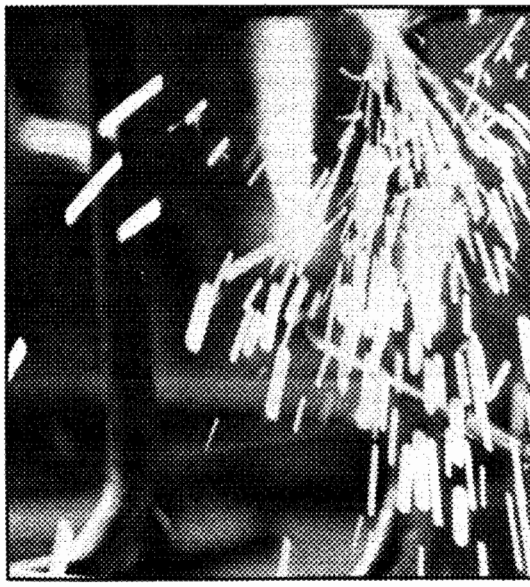
What there is to say about the grave situation in developing countries is not new, but it bears repeating. A quarter of the world's population—a billion people—exist in abject poverty. This poverty is so desperate that most of us have difficulty comprehending it. In South Asia alone, the numbers who live in utter deprivation are twice the U.S. population. Children suffer the most. Half of all deaths in these countries are children under 5, with one out of four never reaching that age. More than half don't attend school.

Third World governments are calling for a new global effort to build technological capabilities in the least developed nations. The potential benefits are unlimited.

The world population growth in the next 20 years alone will equal the growth in population from the birth of Christ to 1950. Ninety percent of this growth will occur in the developing countries, adding more than 500 million to their labor force by the turn of the century. The burgeoning population of Third World cities will suffer even greater increases, fueling unemployment, crime, and environmental stress.

Compounding these problems are the immediate crises of increasing energy costs, rising external debt and the threat of industrial recession in the industrial countries. The slowdown we are seeing in our economy, with big steel and the car





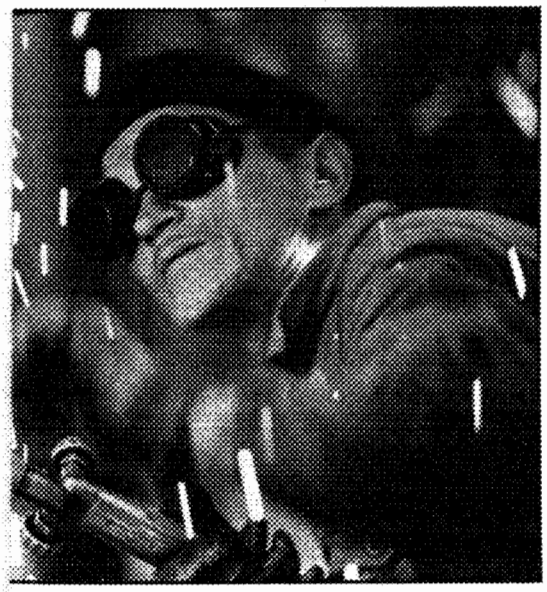
Third World

technology.

plants shutting down, means that exports from developing countries are going to contract sharply and will further restrict their ability to import goods and repay foreign loans. The 1980s will see a disintegrating international economic order; economic growth is going to be extraordinarily difficult to achieve.

In its formative years, the United States had a lot going for it—abundant natural resources, navigable rivers, access to two oceans, an energetic population, and a workforce with skills and a work ethic. Many developing nations have few resources. Fifteen of the 30 least developed are totally landlocked. Most lack trained people of any kind. Most are in the tropics, where they are plagued with diseases such as river blindness and snail fever, a recent upsurge of malaria, spreading deserts, tsetse flies, locust plagues, monsoons, earthquakes.

The specter of starvation already confronts Cambodia. One-third the population of East Timor is malnourished and has reached the point of being unable to recover. The world's largest refugee population, in Somalia, faces the spread of disease and starvation. India has suffered major crop failures this year. Zambia's disastrous corn crop may be only another harbinger of more serious and widespread famine we may see in the 80s.



Significant international steps are being taken to cope with global problems. Yet, despite these initiatives and vast increases in bilateral assistance in the food field, there are a lot more hungry people today than five years ago and the growth of the world food deficit has accelerated.

Margaret Mead remarked that the United States alone has the power to destroy the world, but not the power to save it. All the donor nations together, including the Communist bloc, cannot save the world without the full cooperation of the developing countries. When we are dealing with issues as diverse as the global refugee problem, exploration of the deep seabed, control of offshore coastal resources, control of nuclear proliferation, protection of the earth's atmosphere and ending international terrorism, we need the cooperation of all developing countries, most of whom share our desire for just solutions of these problems.

Traditionally, we have justified development assistance on humanitarian grounds or have argued that economic aid is vital to national security. But now there is a growing perception that the developing countries have become essential to the health and growth of the American economy. Our economic well-being depends to an ever-increasing extent upon our ties with the Third World, links that are growing faster than with any other group of nations.

Export promotion has become far more significant—a major policy instrument to promote growth and strengthen the faltering dollar. We export more to the developing countries than to Western Europe and Japan combined. About 35% of our exports go to the developing states—a third of our wheat, cotton and rice is sold to these countries.

These less developed nations are also the source of valuable imports. Last year the U.S. bought nearly $75 billion dollars, or 42%, of our total imports from them. We rely heavily on them for many commodities critical to industry—30% of all raw materials are derived from this source. By the year 2000 only 20% of our primary raw materials will come from domestic sources. Right now we depend on them almost exclusively for tropical products—coffee, cocoa, nuts and spices, bananas and fibers.

It is estimated that almost half of the unexplored global deposits of gas and oil lie in non-OPEC developing countries. They offer potentially diversified sources of supply for all oil-importing countries.

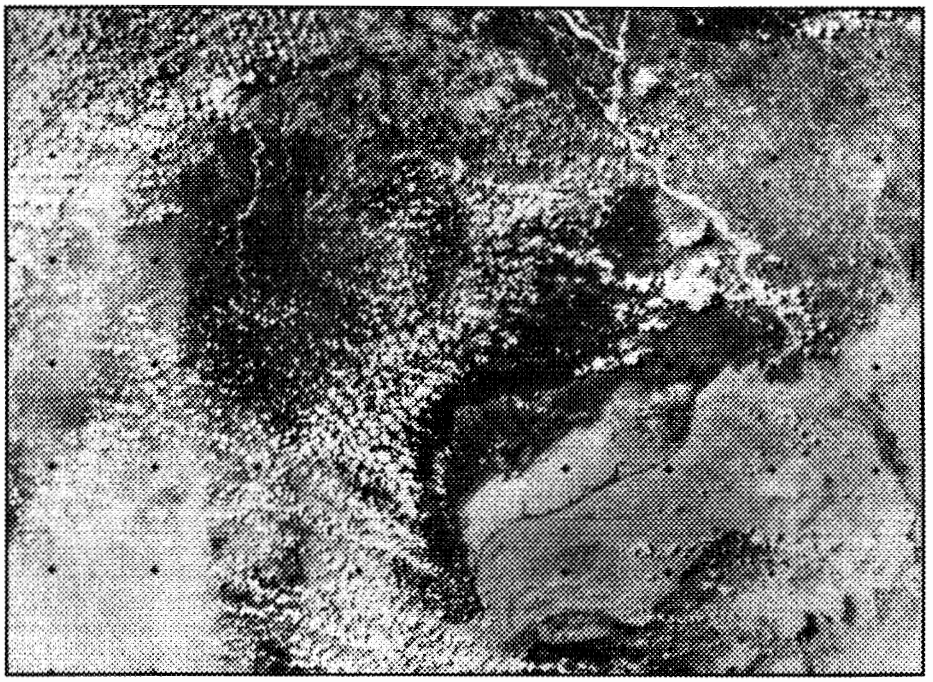
Last year U.S. firms invested over $40 billion in developing countries, a quarter of our total foreign direct investment. And the rate of return on investment in these countries last year was 66% greater than the rate for investments in developed countries. They proved highly profitable,

and last year generated 35% of total income from U.S. foreign investments. And during a time when we are facing massive unemployment from the shutdown of major industries and their suppliers, we should keep in mind that the jobs of 1.2 million American workers depend on exports to developing countries. If these exports continue to grow, developing nations can import more and more U.S. goods and services.

If the argument that it is in our national interest to help the Third World is persuasive, then a question arises: In what ways can this country share its scientific knowledge and technological know-how with these countries to mutual advantage? It is well known that one of the most strident and pressing demands from the developing countries is that the United States share its technology with them, help them to build their own capacity to adapt foreign technology to our needs, and generate their own appropriate technologies. But does modern technology possess the real potential they credit it with?

In any event it is inevitable that, skeptics notwithstanding, new technology will pervade our lives in the 80's. The greater potential of the new technology lies in relatively new fields where large-scale applications have yet to be made. The emphasis will be on doing more with less in a climate of dwindling resources. We all hope that the auto makers are right when they predict that minicomputers in cars may reduce gasoline consumption by at least 15%.

A recent *Newsweek* article indicated there will be few opportunities for quantum leaps in older industries such as steel or textiles, but for the most part new technologies will fall into five rapidly emerging fields —microprocessers, fiber optics, superconductivity, space technology and recombinant DNA. As far as developing countries are concerned, a number of more promising fields of technology will come into their own during the next 10 years.

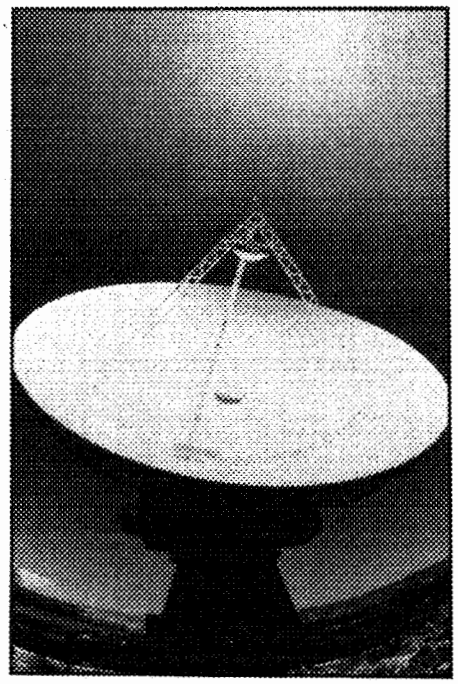


Landsat and a host of other satellites add a new dimension to monitoring Earth's natural resources and environment through remote sensing.

Let's look at microprocessors. Within five years we'll be able to put 256,000 bits of information on a single silicon chip at no increase in price, whereas just 10 years ago only 16 bits could be fitted onto one chip. By 1990 portable microcomputers will be almost as commonplace as handheld calculators are now. This means that many of the functions now performed by human beings in the manufacturing and service sector of industrial economies can be done faster and cheaper by microelectronic devices or by robots controlled by these solid state instruments. This means speed, cost reduction, flexibility, reliability, and capacity for self-diagnosis and correction. One forecast is that while the French banking industry will expand measurably during the 1980s, employment will decline 30%. Since the occupations involving information now institute the largest category in the work force of most industrial countries, even moderate increases could have a devastating impact on employment. Think of the millions of lower level white collar workers in banks, small businesses and other enterprises in developing countries who will be displaced by the small computer. If you introduce microprocessors in these countries, there is bound to be a severe impact on employment.

The Science Policy Research Unit at the University of Sussex in England believes that job displacement will draw far ahead of job-generating investment in the 1980s. In Third World countries already confronted with high unemployment—in Iran it is running 25%—there are likely to be large-scale social crises when they are forced to deal with a rapidly growing work force, widespread poverty and a badly skewed income distribution.

Recombinant DNA holds great promise. We now produce insulin in this country with a new DNA process and hope we can adapt a similar process to produce interferon, a tremendously expensive and little studied substance that could offer a new approach to fighting cancer. Scientists are growing a special type of bacteria that has an enormous appetite to gobble up massive oil spills from supertankers. In Saudi Arabia Chinese scientists are working to manufacture an economical single



Remote sensing can provide information countries need to manage their resources.

cell protein that can be grown on a petroleum substrate for animal feed.

We will see impressive new advances in the food field. AID, for example, is investing $40 million to improve selected grain legumes, which make up the major source of protein for half the world's poor. They are important because they supply the high quality protein lacking in most cereal grains. Recent breakthroughs in the science of biological nitrogen fixation offer considerable promise in increasing the capability of certain legumes such as cowpeas and soybeans to obtain most of their nitrogen fertilizer requirement through bacteria living on their root nodules.

We are working on new crop introductions, such as winged bean, a tropical legume whose protein content is about identical to that of the soybean. The National Academy of Sciences has identified dozens of little known or underutilized tropical crops that it believes have a great untapped potential for developing countries, many of which make less demand on soil, water and fertilizer than temperate crops previously introduced in these regions.

A really significant research breakthrough has been achieved in the physiological techniques required to introduce spawning in milkfish. This is the most widely cultured marine fish in Southeast Asia. Simply put, you mix a cocktail of valium and an antibiotic to calm the large adult fish and reduce infections, and then add a hormone injection, and presto—you rear massive quantities of fish fry from eggs instead of netting fry in the open sea for stocking fish ponds. This means vast new quantities of milkfish can now be reared in millions of hectares of unused mangrove swamps and brackish coastal lowlands, providing a new source of protein at very low cost. For several million rural coast dwellers, typically the most poverty-stricken in these countries, it means higher incomes and more plentiful protein.

At Alabama's Auburn University, fish breeders have produced a new hybrid tilapia that has a significant worldwide potential. Brazilian scientists recently discovered a herbivorous Amazon fish that will convert agricultural and food industry wastes to edible protein.

An international network of 10 malaria research institutes recently demonstrated that a malaria vaccine is biologically feasible, with 100% success in immunizing monkeys against human malaria. This means that within the next decade we can probably provide a vaccine for field trials that will most likely become widespread in the last decade of this century.

The critical global shortage of firewood is being attacked from many angles. The lack of firewood means that women who might otherwise be attending to essential chores must often walk for hours to gather dwindling supplies of wood to cook the evening meal and keep the family warm. Not only is firewood critically short, but due to overcutting there is massive destruction of tropical forests in the greenbelt around the equator. One partial remedy promoted by AID's experts is introduction of an extremely fast-growing tree from the Philippines called the *leucaena*. It can grow 65 feet and 16 inches in diameter within five years.

There are other answers to the firewood shortage. The simple lorena stove developed in Latin America and made of clay and sand uses firewood much more efficiently. Biogas digesters are supplying methane for cooking in India and many other countries. Solar reflectors are being increasingly adopted for cooking in many tropical areas.

What is the ultimate answer in providing village energy needs in developing countries? I. H. Usmani, the United Nations Development Program energy adviser, is convinced that it lies in photovoltaic arrays that use small silicon solar cells to convert sunlight directly into electricity for storage in local village batteries. Last year the cost per peak watt was around $7, but this is expected to drop to about 50¢ by 1986. At this level it can compete economically with oil and possibly other fossil fuels. Right now one village in Upper Volta is using the photovoltaic source to pump water and grind grain with practically no upkeep cost. There are problems of course—the source of raw materials is limited and battery storage often presents a problem. If Usmani's prediction is true that solar cells are the answer for remote villages, within the decade we will have the promise of extending new communications into remote areas to power radio and TV, provide refrigeration for drugs and vaccines and, most important, for the first time offer millions upon millions of remote villagers electric lights to study and read by.

The use of very small hydroelectric power is another very promising possibility for villages. For example, $15,000 and a lot of labor permitted several villages in a remote valley of Papua New Guinea to install a mini-hydroelectric plant. For the first time they not only have light for their schools and a regular water supply

for the village, but for the first time in their lives each villager can have at least one daily hot shower.

Rolls Royce has just developed an inexpensive small turbine that can generate electric power for rural areas using a low-grade alcohol as fuel. The corporation is actively promoting distilleries to convert cassava, sugar cane and agricultural wastes to alcohol in developing countries that are suffering most from escalating oil prices. And in Brazil, 2 million cars are now fueled with gasohol, local alcohol distilled from sugar cane.

A host of other intriguing technology is coming, all of which hold a promising potential for the 80s. Some are even far out. For example, the scientist who developed the concept for towing icebergs from Antarctica to supply water to Saudi Arabia has a new scheme. It involves a giant sausage-like steel skin about two-thirds of a mile long, which is pulled underwater by an ocean-going tugboat that is also semi-submerged and has a propeller over 100 feet in diameter. The scientist feels the first high priority application of this new approach would be in Chile. There, the giant Kennecot and Anaconda copper companies are desperately short of fresh water near the Atacama desert, one of the driest places in the world. He proposes to tow fresh water from the abundant supplies in the southern Chile rivers to not only help the copper companies, but to make the Atacama bloom.

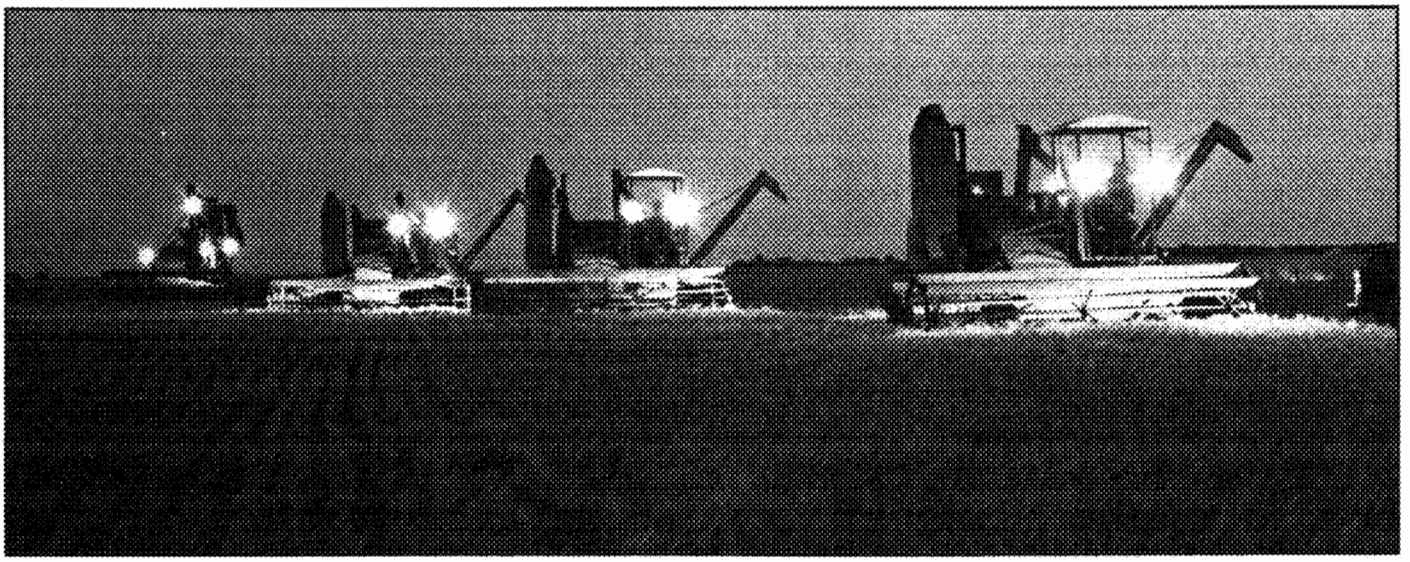
I have barely touched upon some of the exciting new technologies awaiting us in the next 20 years. In seeking to use these technologies, developing countries face a bitter choice. They can be integrated into the present international system, which will only increase their technological dependence. Or, on the other hand, they may disengage themselves from that international system and be forced to forego benefits of worldwide scientific and technological advance.

Discussion at the Vienna Conference on Science and Technology pointed to the likelihood that they'll opt for limited integration, but will insist that it be within the terms of a new economic order for which they are pushing strongly. Negotiations are underway in the UN Conference on Trade and Development—UNCTAD—regarding codes of conduct governing technology transfer and the behavior of multinational corporations in sharing technology assets. Elsewhere negotiations continue on revising the Paris Convention governing international patents and licensing agreements. This debate on mandatory vs. voluntary codes comes down to the question of the extent to which industrial countries are prepared to subsidize technology flows competitive with their own industries. In our own country, corporations and unions are joined in arguing vehemently that export of technology means export of jobs, pointing to our experience in recent years with Korea, Hong Kong, Taiwan, Singapore and other new industrial nations.

In any event, we must do everything possible to enhance the negotiating capability of developing countries in their effort to acquire foreign technology. One practical way has been suggested by the National Association of Licensing Executives, which has asked AID to help them conduct training courses for developing country executives responsible for negotiating foreign technology license agreements. This is a positive step.

It is essential that we strengthen indigenous capabilities in these countries to decide among technological alternatives and to help them carry them out. Special measures must be adopted to ease the international flow of technology for the benefit of least developed countries. □

William L. Eilers is with AID's Office of Science and Technology. His article is adapted from a recent speech before the Association of American Colleges.



WHAT THE MEDIA SAY...

While lawmakers here (in Washington) haggle over spending limits, refugees in Somalia—who now total more than 1.3 million people, the largest group of refugees in the world—are running out of food.

American refugee officials say that the plight of the Somali refugees represents the most urgent need for the United States' foreign assistance. Unfortunately, they add, our aid to the Somali refugees may end soon, a victim of political circumstance.

So, while American farmers worry about falling grain prices, and taxpayers worry about inflation and Congressmen worry about the elections, refugee officials ponder with growing despair the plight of the refugees in the Horn of Africa.

—New York Times

The rapid development of Sino-American relations is about to confront the Carter administration with the difficult questions of what kind and how much assistance the United States will give China for its ambitious modernization efforts.

The costs, both in political and economic commitments, will probably be high, but U.S. officials now see a strong China as more important than ever to the American global strategy.

—Baltimore Sun

A new report compiled by the National Research Council—the operating arm of the National Academy of Scientists—says the loss of tropical forest land is continuing at a much faster pace than scientists had estimated, and that there is now growing evidence that tropical rain forests could disappear entirely. . . . The committee calls for an immediate increase in research in the forests, including a greatly accelerated biological inventory of the threatened lands and an expansion of studies on tropical ecosystems.

—Lance Gay
Washington Star

Thailand announced massive energy saving measures this week as the fuel import bill approached $3 billion annually. The measures include the curbing of domestic electricity consumption as the level of water in upcountry dams fell dangerously low.

—Journal of Commerce

Business confidence in Central America is ebbing fast as Marxism spreads through the region which is on the way to becoming an enemy of the United States.

This was the message given recently to the House of Representatives Foreign Affairs Subcommittee on Inter-American Relations by officials of the American Chambers of Commerce in Nicaragua, El Salvador, Guatemala and Costa Rica.

—A. Koffman O'Reilly
Journal of Commerce

The developing countries in non-Communist Southeast Asia, considered to have among the highest growth rates in the world—averaging some 6% across the board in the five members of the Association of Southeast Asian Nations in the past five years—are now seen to be on the wane.

Chemical Bank's economic research department said real growth in Asia slowed in 1979 and the trend will continue as consumer price inflation increases and current-account deficits rise sharply . . . The bank predicted that Asia's 10 largest developing nations will experience an average growth rate of 5.2% in 1980, while the developed nations in Asia—Japan, Australia and New Zealand—will grow at only some 4%.

—Journal of Commerce

A project started in Sunflower County to raise pigs has now been used as a model for a similar project in Swaziland in Africa.

The pig cooperative is one of several projects that will create more job opportunities for women in rural Swaziland. The cooperative project (funded with a grant from the Agency for International Development) was planned jointly by a special committee appointed by King Sobhuza II of Swaziland and the international division of the National Council of Negro Women of Washington, D.C.

—The Enterprise-Tocsin
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