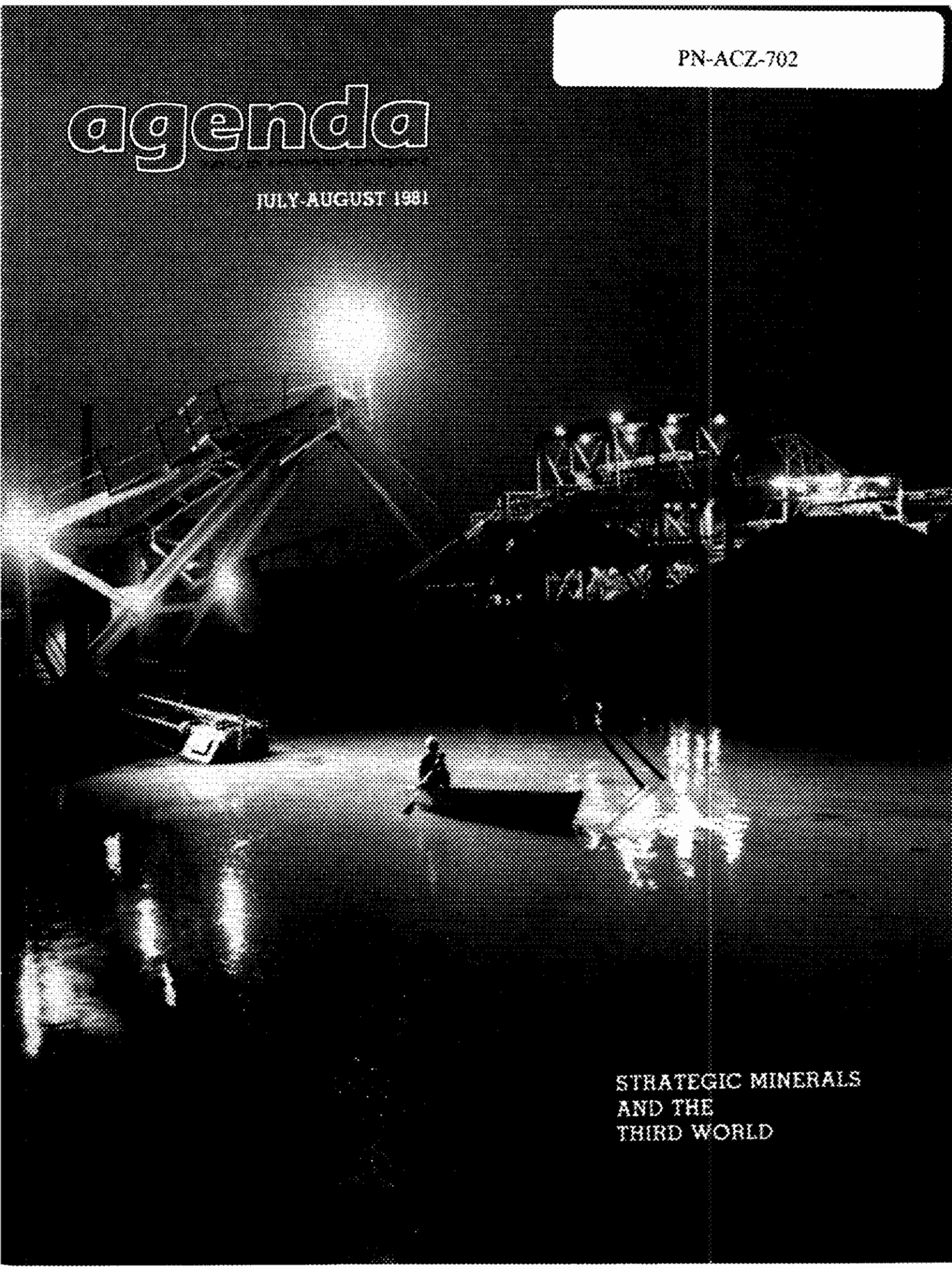
agenda

JULY-AUGUST 1981



STRATEGIC MINERALS AND THE THIRD WORLD

DEVELOPMENT UPDATE

What are the basic human needs for development? According to a World Bank report: five years at school; adequate nutrition; primary health care no more than an hour away; family planning services; at least 20 liters a day of pure water per person within 100 yards of home; and a pit latrine.

Development, a long hard road: "I was part of a rural health program in West Africa," recalls an ex-Peace Corps volunteer. "We were received very warmly into the villages and the women seemed to listen very attentively as we tried to explain the importance of sanitation and nutrition. We noticed that the village children were eating dirt and of course we urged the women to make them stop and explained why. They nodded and said 'yes, yes' but the children kept at it. Africans are very polite people and they don't like to tell you something they know you don't want to hear. But finally one of the women spoke up. 'We can't tell the children to stop eating dirt,' she said. 'That's what makes their bones grow strong.' And suddenly I realized what a big job lay ahead."

Lady with a hoe, etc.: Women provide 30% to 70% of all agricultural labor in the Third World. Depending on the country and the culture, they sow, plow, weed and harvest. They also carry water for irrigation and play critical roles in the marketing, processing and storage of food and cash crops. That means, say development experts, that if agricultural production is to be increased in developing countries, much of the job literally falls on the backs of women.

Lantern fish, light in the gloom: A protein-short world can look with hope to the lantern fish, according to *IDRC Reports*, a Canadian government publication. "The lantern fish lives much of its life at the bottom of the sea. It is about the size of a sardine, looks like a tiny trout and glows in the dark. But what is really interesting about it is that it is so plentiful—it could become one of the world's biggest sources of protein." Says *Reports*: "The little lantern fish was generally ignored by the fishing industry until recently. Then a Norwegian research ship, sponsored by the United Nations in a program that involves 30 countries, discovered about 100 million tons of the fish in the Arabian Sea. Given that the total world fish catch is less than 70 million tons annually and that the lantern fish is found in all the world's major oceans, the discovery of such quantities of the fish could well lead to radical changes in the fishing industry and a huge new protein resource for the developing world." Studies will be made of the best ways to develop it as a food resource.

What are the basic human needs for development? According to a World Bank report: five years at school; adequate nutrition; primary health care no more than an hour away; family planning services; at least 20 liters a day of pure water per person within 100 yards of home; and a pit latrine.

Correction: The per capita GNP for Honduras is $480, not $480,000 as stated in the June *Agenda*.

agenda
agency for international development

Cover: The United States is becoming increasingly dependent on imports of so-called "strategic" minerals from the Third World. As a nation that consumes 30% of the world's wealth with only 6% of its population, we have a very important interest in the developing nations. See article on page 11.

Cover photo: Gaye Zold/Pittsburgh Plate Glass Co.

Photo credits: Mary Sebrechts/USDA, pp. 2-4; International Communication Agency, p. 5; National Oceanic and Atmospheric Administration, p. 10; Hamilton Wright, p. 11; Manley, p. 13; Bougainville Copper, p. 14; U.N., p. 15; AID, all others.

CONTENTS

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AFRICAN SWINE FEVER STRIKES

A virulent disease, immune to all known vaccines, threatens the Americas.

by Lee Mullane

In 1980 all 1.5 million pigs in the Dominican Republic were rounded up and slaughtered.

It's only a matter of time.

That's what experts are saying about the spread of African swine fever throughout Latin America and even into the United States. The fever, a virus that is both highly contagious and fatal to pigs, devastated herds in Cuba in both 1972 and 1980, in Brazil, beginning in 1978, and most recently in the Dominican Republic and Haiti.

The Dominican Republic last year courageously moved to wipe out the disease by the most effective means it had—by killing all 1.5 million pigs in the country.

Not an easy task by any measure. In addition to the logistics of the slaughter campaign, which took on an almost military precision, the government had to contend with the social aspects of the action. The pig plays an important role in the lives of most Latin Americans; the Dominican Republic is no different. The pig is a major source of protein in the diet; for some it provides the only source of income; and in many instances represents the family savings account. Usually raised with the family, it shares sleeping space in the home, is both a child's playmate and a symbol of the family's wealth. Ultimately it occupies a place of honor—on the table—for the family's most important celebrations.

To order the mass slaughter of pigs might have been to court open rebellion in some countries, but Dominican leaders and swine growers became aware of the hopelessness of living with the swine fever, and the need to deal with it effectively.

Similar to, but potentially more serious than, the hog cholera known in the United States, African swine fever is difficult to detect until just before the swine die. While pigs afflicted with cholera develop clear symptoms ranging from respiratory difficulty to diarrhea and obvious illness, the pig with African swine fever often appears healthy. In some outbreaks, especially in early stages, virtually entire herds have been wiped out quickly before the disease is detected. Later in the outbreak the fever may be more detectable. In killing entire herds of swine, it can also wipe out many a small farmer whose livelihood depends on the animals. Moreover, because no country free of the disease will buy pork from another where swine fever exists, the problem has serious implications for the economy of a developing country whose major exports may include pork.

First known only in Africa, the fever has cropped up in the past few years in Portugal and Spain, where it is now considered endemic. It has appeared in Sardinia, Sicily and Malta. More recently it arrived in Latin America. Experts believe that its ability to jump continents can be traced to the increase in international air travel—and to the garbage discarded from

U.S. pigs have been flown in to restock Dominican herds.

airplanes and ultimately fed to pigs. If the garbage contains even a bit of infected pork, and if it is eaten by another pig, swine fever is the result.

While some countries have taken precautions, specifically the monitoring of the collection and disposal of food scraps at airports, the threat of the spread of the disease to other countries, even the United States, is very real. In fact, according to AID livestock health specialist John Walker, if the fever should show up in even one state, Florida, for example, it could spread rapidly to other states because of overnight transportation to markets and processing plants across the country.

Even the Dominican Republic, after the costly and lengthy task of slaughtering all its own swine, remains vulnerable to an outbreak among any new pigs it should breed. It could happen as easily as an infected pig can walk across the unprotected border from Haiti.

There is no effective vaccine, although researchers have been working diligently to find one. To protect itself in the interim, the United States has tightened enforcement of airplane garbage collection and processing, and of its requirement that all persons arriving from another country declare whether or not they have been on a farm. If so, their outer clothing and footgear must be sanitized. When the boat people began arriving in Florida, that state confiscated and either burned or buried all food brought in.

Every ship that comes into an American port is boarded by a U.S. Department of Agriculture inspector, who scrutinizes and seals the food on board. While in port, the ship's crew must eat American. U.S. officials also have stepped up surveillance of all swine moving through southeastern states. And USDA has initiated special training for veterinarians from the United States and other countries. The training is to better equip the veterinarians to recognize and deal with the disease.

The Dominican Republic wants to rebuild its swine herds. It is off to a hopeful start with the purchase of 800 U.S. swine. They will serve as "sentinels" on monitored farms that experienced earlier outbreaks. If the virus is still present, the sentinels will become infected and die. If the area is clean, they will stay and form the breeding foundation of the nation's new swine herds. The government estimates that it will take up to four years to restore the nation's swine population.

In the meantime, other Latin American countries could take a lesson from the Dominican Republic's pig eradication campaign.

The Dominicans' cooperation was due to a highly effective public information effort that preceded the campaign. Moreover the campaign was marked by

Laying hens replaced pigs as a source of protein and income for Dominicans during its "no-pig" period.

restraint, and by the commitment of the government to fairly compensate each farmer for his pigs—at about 50 cents a pound.

With $226,000 in a grant and a $6 million loan from AID, and proceeds from the sale of a $10,000 government bond, the Dominican government dispatched veterinarians, soldiers, field workers and animal health personnel in "brigades" through the country's eight agricultural regions. The USDA provided a technical advisor to the government. Consultants from the United Nations' Food and Agriculture Organization and additional technical specialists from USDA were also provided as needed. Armed with posters, leaflets, presentations and the like, the brigades persuaded the people either to eat their own pigs themselves, sell them to local slaughterhouses or in local markets, or accept slaughter by the government agents, and receive cash compensations.

In March 1980, the government closed the door to all pork imports in order to force into commercial channels and onto dinner tables all pork that might have been held in storage. By the fall the government officially announced that all the country's pigs had been killed.

The effort was not without problems. Some farmers insisted that their pigs were sick not with swine fever, but something else, and shouldn't be slaughtered. Others argued that the compensation was short of fair. Further complicating and delaying the effort were two hurricanes that swept the country in 1979 and 1980.

Experts have cautioned against rushing the rebreeding process. The susceptible swine must be constantly monitored for symptoms. Currently a veterinarian visits each sentinel farm to check the condition of the new arrivals. If an animal appears sick and has a fever, the veterinarian takes tissues for laboratory examination and testing. To date no sentinel pigs have become infected with African swine fever.

While they wait for their pork supply to be replenished, the Dominicans eat chicken. The government is importing about 150,000 young chickens a month from the United States for sale to the people at about 25 cents each. In addition, more meat—usually mutton—and fish is being introduced into the Dominican diet.

Last July the FAO started a two-year African swine fever training program for representatives from the Caribbean and Andean regions. It plans to place two veterinarians and two animal health technicians in Haiti.

According to a USDA's animal health official, "for most countries of the Western Hemisphere, including the United States, it is not a question of 'if' but 'when' African swine fever will strike. Hopefully, by working together, most nations will have time to prepare—and contain the disease quickly before it spreads." □

WATER FARMING

Aquaculture promises to fill the food gap for many developing countries.

by Raisa Scriabine

A bas relief found on an ancient Egyptian tomb shows tilapia being fished out of an artificial pond. The tilapia has been an important food source for millennia. It was tilapia that Jesus fed to the multitude almost 2000 years ago.

Today, this lowland fish, common in Africa and the Middle East, is being raised as a food supply in many tropical regions around the world. The tilapia is prolific, hardy, cheap and easy to breed. The current interest in tilapia is only part of a growing re-examination of the ancient art of aquaculture (literally, the cultivation of water) as part of the answer to today's growing world food problem.

Aquaculture—the cultivation and harvesting of food from the sea and from freshwater sources—plants, animals and fish—provides excellent and needed protein particularly for developing countries. Its yields are often more economically produced than animal protein. Aquaculture calls for minimal investment and can be accomplished very near to consumers. The benefits go on: Aquaculture also can contribute to foreign exchange earnings.

Projections for the year 2000 suggest that the number of people without adequate nutrition will exceed one billion. Most of the malnourished of the future, like most of the malnourished today, will be in the developing world. Reliable local food production is needed to meet this anticipated demand. Aquaculture may hold the key.

Controlled aquacultural production is not subject to the economic, environmental and political uncertainties that have hampered commercial fishing. Fishing has suffered from increasing fuel costs, economic marine rezoning, water pollution and large scale mortality of some species. Aquaculture is more resistant to the climatic and geographic factors that affect other forms of food production. For example, estimates show that it is theoretically possible for water resources—rivers, lakes, ponds, oceans—to supply all the

animal protein the entire world requires.

During the past five years worldwide production from aquaculture has doubled from 3 to 6 million tons. By 1985 the yield could be as high as 10 million tons. The major increases have occurred in countries—particularly in Asia, Central and South America—where aquaculture has ranked high in development plans and essential investment and support services have been provided.

AID is actively involved in aquaculture projects in tilapia and carp breeding in over 20 countries. AID emphasizes the development of indigenous species to get fresh protein into the back country where it is difficult for people to obtain other food supplies.

On May 5, 1981, Richard Pretto, director of Panama's National Directorate for Aquaculture, received an award for his efforts to establish freshwater fish industries in Latin America. Pretto's involvement with AID in aquaculture is long-term. Five years ago, with technical assistance from AID, Auburn University initiated a fishery program in Panama. Pretto was one of those involved. Later, with AID's help, Pretto came to the United States to earn his doctorate at Auburn. Two years ago, in Panama again, he developed over 200 ponds for tilapia rearing in the province of Veraguas. The ponds produce an average of 700 pounds of fish a year and feed about 7,500 rural families.

In the United States, aquaculture research has been ongoing for more than a century. The impetus was initially to solve problems that would permit the development of hatcheries for restocking species already in demand for recreational or commercial purposes—trout, salmon and oysters, for example. More recently, U.S. aquaculture research has expanded to cover clams, catfish, freshwater prawn, lobster, marine shrimp and other species. This is not surprising since the market for high value shrimp and prawns is on the upswing. After the Iranian caviar export market dropped with the fall of the Shah, U.S. entrepreneurs have turned to rearing caviar-producing fish, such as the paddle fish, in an effort to create a high grade, domestic caviar supply.

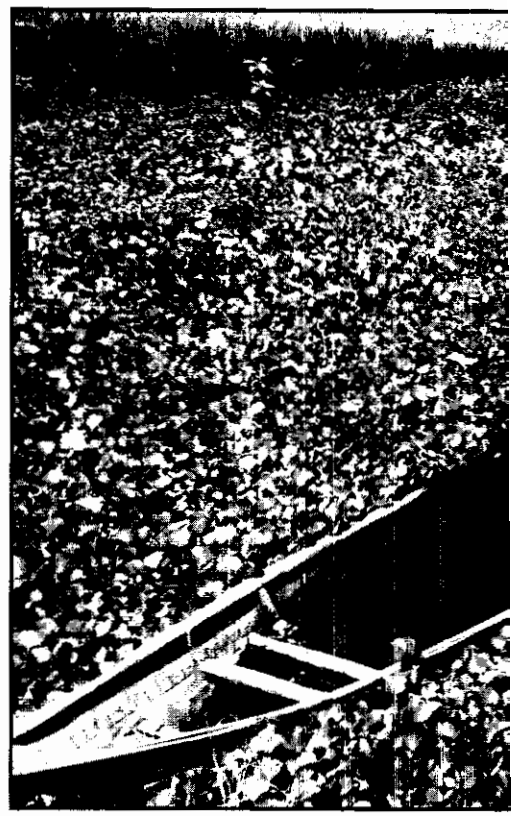
Although aquaculture has potential in this and other developed nations, it provides the greatest potential benefit as a food source in the developing world. Aquaculture can be done almost anywhere. While the major emphasis is on fish farming, plant and seaweed farming are also important. Today, for example, seaweeds are already used as a source of vitamin C, poultry meal, food stabilizers and meat and fish preservatives. Such nations as mainland China, Japan, India, Indonesia, Taiwan, Philippines, Korea, Thailand and Bangladesh produce a major portion of their food from farmed fish, both for domestic consumption and for export.

During the last decade a number of advances in aquaculture research and technology have allowed for the improvement and modernization of old technologies and traditional practices in many areas of the world. By improving design, materials and feed, it has been possible to successfully raise catfish, salmon, trout, yellowtail and milkfish.

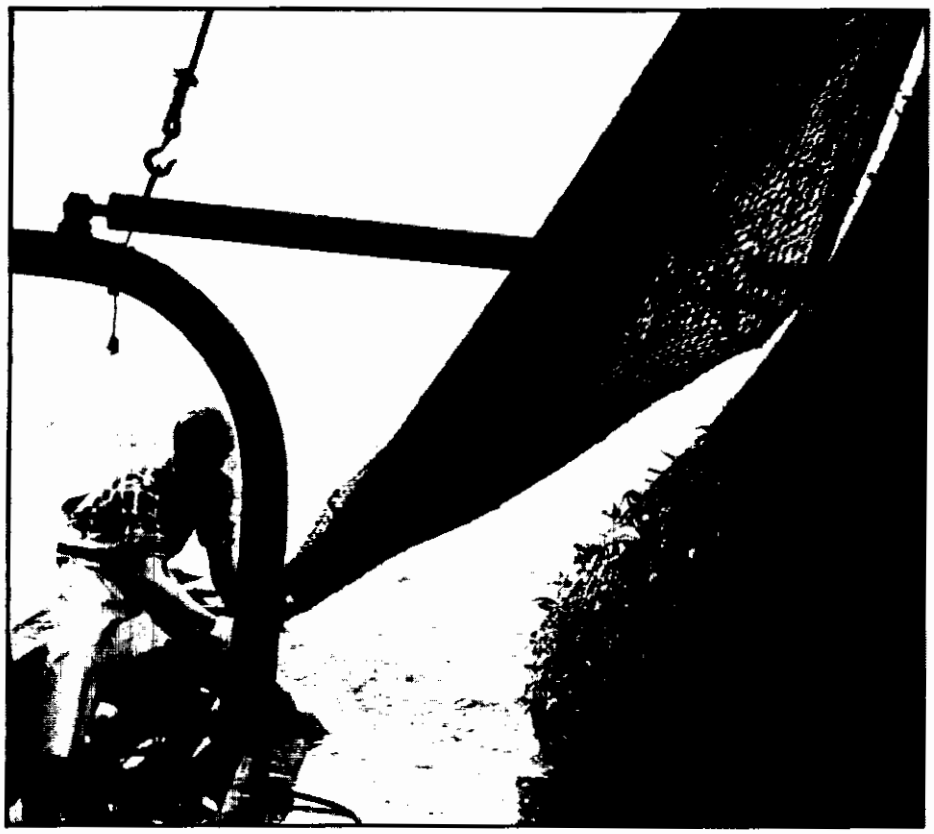
The polyculture of fish—the practice of raising several different species in one pond—is an ancient technology still in use in Asia, especially China and India. In polyculture one species of fish will be raised near the surface, another at mid-level and a third at the bottom. Carp culture was widespread in China in 2000 B.C. and was even widely established in Eastern Europe by the seventh century A.D. Experimental work in recent years has given scientists a better understanding of the importance of these systems for rearing various species of carp and tilapia with only modest supplemental feeding.

Attempts at raising tilapia were

Aquaculture has the greatest potential benefit as a food source in the developing world.



A canal choked by water hyacinths could harbor edible fish and plants.



Recent technological advances have boosted the potential benefits from fish raising throughout the world.

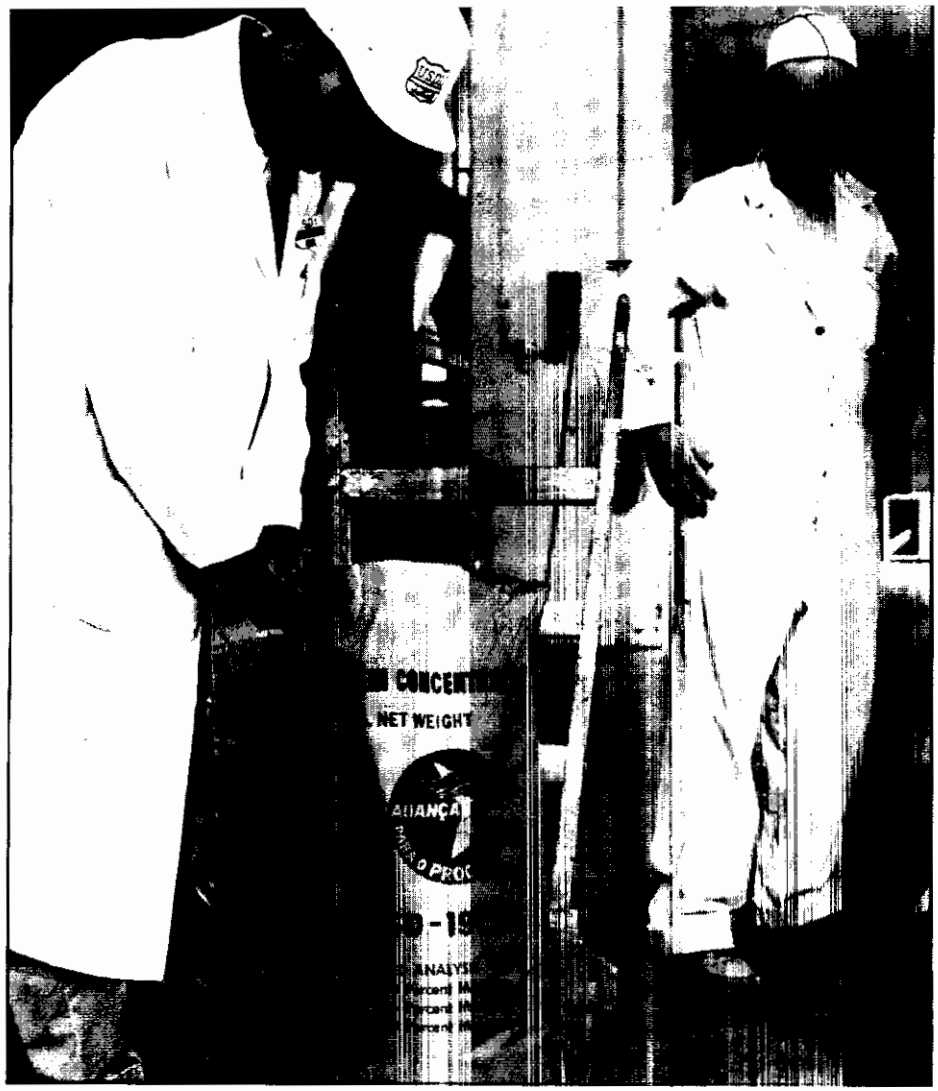
made in Kenya and the Congo (now Zaire) in 1937. In central east Africa, the first trials of fish pond culture were made in Zambia in 1942 and Zimbabwe in 1950. In all, Africa's inland fisheries provide more than 1.4 million tons of fish each year.

In Mali and Chad, fish is the second largest export commodity.

In South Asia, where seafood already plays a significant role in the national diet, the potential for commercial, capital-intensive and highly productive aquaculture is much greater than in any other area of the developing world. Recent scientific developments in the Philippines, Taiwan and India have shown that it is possible to increase production in ponds at least tenfold. In parts of Southeast Asia, clams, oysters and mussels are now being farmed and similar shellfish farming in other tropical areas has potential for increasing food supply and employment possibilities.

Many fish that have never been cultivated show great economic potential. One is an intriguing Latin American species found from Mexico to Peru, and known locally as *chame*. The fish has a unique ability to survive out of water for several days, thus offering a simple solution to the problem of transporting fresh fish. It also has few bones, tasty white flesh, and can live in fresh or brackish water. The question of whether or not it can survive in captivity remains to be answered.

Aquaculture can be successfully developed even in semi-arid regions—Brazil's northeast interior is one example. The Brazilian government has built or helped build nearly 6,000 ponds and reservoirs in that region. In 1966, a fisheries research center was established in Fortaleza. Since then, the largest freshwater aquaculture research station in South America was built in Pentecoste, about 50 miles west of Fortaleza. Here research centers on evaluating exotic fish for introduction into reservoirs to increase produc-



Over the years fish protein concentrate has been used to increase the nutritional value of many foods.

tion and on evaluating the potential of several Brazilian fish. Brazil possesses a wealth of fish species, many of which are well suited to rearing in ponds or stocking into reservoirs. The Amazon River basin alone is reported to have 1,300 species of fish. By comparison, there are only 250 species in the Mississippi.

While aquaculture shows promise as a food source, it is not without inherent problems. In developing countries where aquaculture has been practiced extensively for many decades, there has been little incentive to improve production. The increasing scarcity of good land and water puts pressure on pond production. However, because there is a shortage of land and water, there is greater need—and incentive—for using cages and enclosures for raising fish; this means high protein yields in areas where resources are limited. The availability of food—for fish or plants or other marine life under cultivation—is a basic requirement for aquaculture systems. Natural supplies are limited and increasing the stock of some species will not be possible until reliable food sources are available. In developing nations, government encouragement will be necessary to foster aquaculture. Effective fishery management and research organizations are needed as well as people's acceptance of fish as a food.

Before investing in aquaculture, a government must first carefully select the project location. For example, if there is no shortage of animal protein in a given area, there probably is no need for aquaculture. If the water supply is inadequate, or a ready market is not available, the venture may have no future.

The potential of water life as a major food source for tomorrow's hungry is there. And burgeoning populations and growing shortages of arable land, especially in Asia, Africa and Latin America, make the development of aquaculture urgent. □

Raisa Scriabine is special assistant to AID Administrator M. Peter McPherson.

Largest School of Sea Animals Spotted Off Antarctica

Scientists studying marine life in the cold waters near Antarctica have reported what could be the largest school of sea animals ever measured—10 million metric tons of shrimp-like krill.

The mass of krill is about one-seventh of the yearly total catch of fish and shellfish in all the world's fresh and salt waters. There were enough krill in this single school to give every person in the United States about 98 pounds of the crustacean.

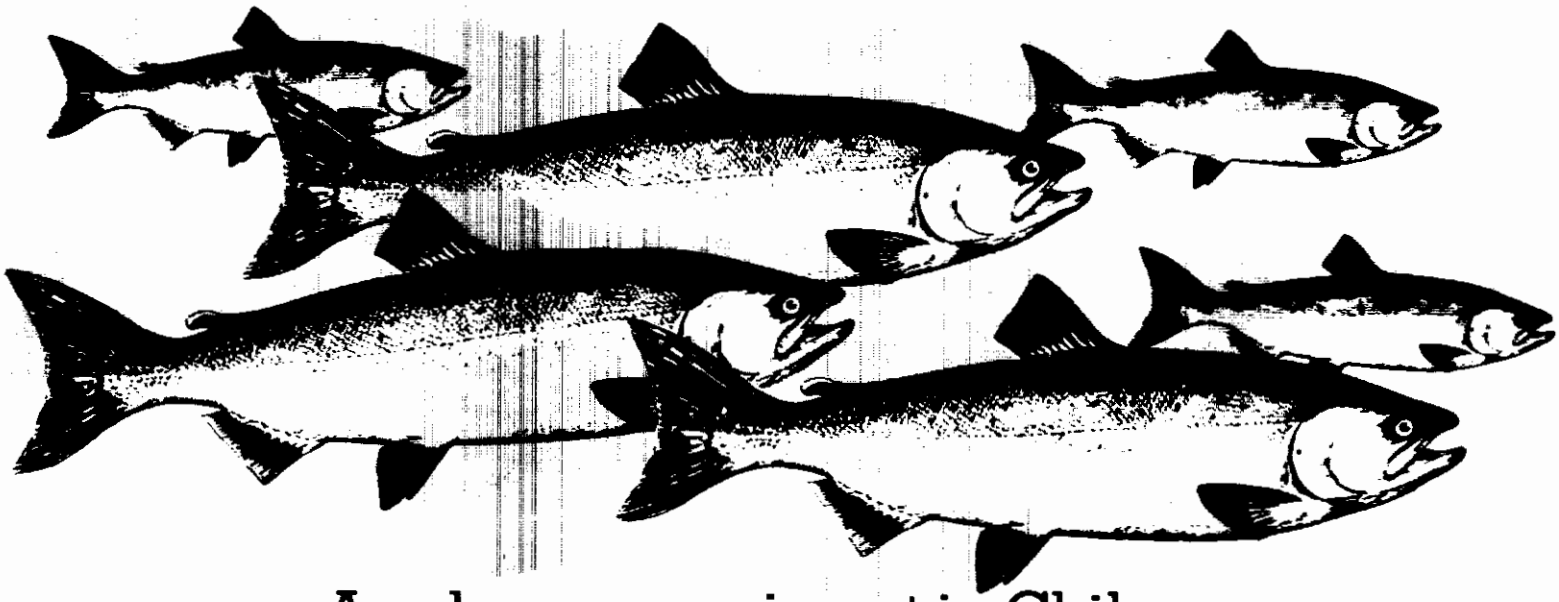
The swarm of krill was measured by acoustical and netting techniques during three days of a research cruise north of Elephant Island. The researchers, working aboard the research ship *Melville*, reported that the krill patch measured several square miles and ranged in depth from about 60 to 600 feet. The 45-day cruise of the *Melville* in antarctic waters was funded by the National Science Foundation.

Two West German and a Polish research vessel worked with the *Melville* in the acoustic-netting studies and exchanged information and data with the Americans. The research is part of a large international study of krill.

Some scientists think the krill, whose scientific name is Euphausia Superba, is a potentially important source of protein for man and animals.

The scientists reported that 35 Soviet trawlers were in the vicinity of the large school.

SALMON: Coming Home



A salmon experiment in Chile seems to be working.

by John G. Blair

The salmon are coming home to spawn—not up the Columbia River of the northwestern United States but back to the freshwater Chilean hatcheries where they have been successfully transplanted. The South American homecoming is a triumph of marine biology that has eluded scientists for more than 75 years.

Domsea Farms, a U.S. ocean ranching firm and Campbell Soup Co. subsidiary, introduced the fish into a southern region of Chile that bears striking climatic and geographic similarity to salmon-producing areas of the Northern Hemisphere. They transplanted fertilized eggs of two species, coho and chinook, from the Pacific Northwest to these South American waters. The fish seem to have adapted well: Thousands of coho fingerlings have been produced from the U.S. fish which returned to their freshwater hatching sites in Chile early in 1980 after a year and a half at sea, and significant quantities of chinook returned to spawn last November after two years.

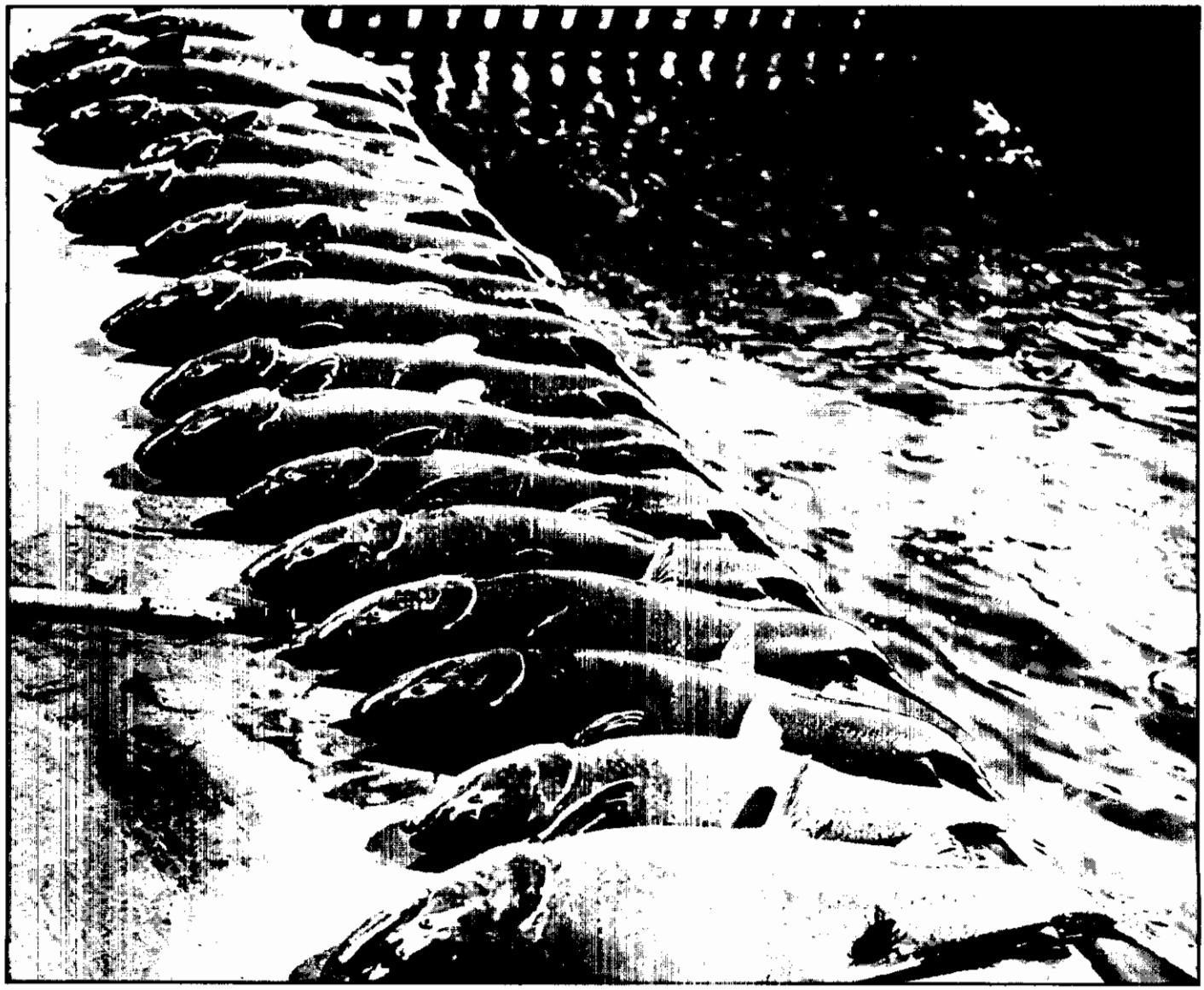
This is especially good news to Chilean economists, who are eager to cash in on a new export which, unlike copper, is renewable and not subject to replacement by a synthetic. The Americans are enthusiastic, too. The U.S. earned $403.5 million from the salmon last year. Echo soundings by the Chilean Institute for Fishery Development have further encouraged the economists' optimism. Apparently thousands of freshwater channels and rivers in the southern third of the country are teeming with planktonic, galtheid crabs, and excellent food for juvenile salmon.

Before Domsea's success, a private Chilean-Japanese firm had announced plans for ocean ranching in the south. In addition, the Japanese government signed a pact with Chile in late 1979 committing 100 million yen to a five-year joint ocean ranching project. They estimate that within 13 years a facility near Coihaique in southern Chile could produce salmon worth more than $20 million a year.

The Japanese consider Chilean ocean ranches an excellent way to escape international pressure to limit deep sea salmon fishing. Moreover it offers a permanent haven from 200-mile fishing zones. Yet unlike the Americans who succeeded in their first attempt, the Japanese have repeatedly failed to transplant salmon to South America.

Since 1974 they have airlifted more than 11 million chum and a few hundred thousand cherry salmon eggs from Japan to southern Chile. Once the fingerlings reached the migrating or smolt stage, they swam out to sea and disappeared. Not a single Japanese salmon returned.

Timothy Joyner, an oceanographer who was a member of a 1975 Chilean,



American, and British task force that investigated the region's salmon potential, suggests that the young Japanese fingerlings may have become meals for the ravenous brown trout that were introduced earlier in the century. He also speculates that surviving seagoing smolts might have been caught up by a seasonal divergence of the West Wind Drift. If the young fish swam into the northern limb of this flow, they would have been carried into the Humboldt Current and finally to death in the warm waters of the South Equatorian Current. The American fish that survived were larger, and they were released closer to shore.

Stressing the experimental nature of their work, Domsea Farms officials say that it will be years before their operations will be self-sustaining or capable of surviving without continually importing fertilized eggs. However, Domsea recently built four new rearing ponds on tiny Quinchua Island off the eastern coast of Chile's Chiloe Island. The ponds are capable of holding millions of fingerlings. In a move that would give its salmon access to protein-rich krill concentrations of Antarctica, the company also obtained Chilean government permission to develop several sites near Fuerte Bulnes, close to the Strait of Magellan.

Just how these developments will affect Chile remains uncertain. But salmon does not need to be a high-priced food bred only for gourmet palates in Tokyo and Washington. The fish was once common in the diets of Northern Hemisphere coastal residents. Someday Chile's new natural resource could become a mainstay of the Chilean worker. □

Strategic Minerals and the Third World

by Georgia Sambunaris

Why all the fuss over "strategic" minerals? Who needs them?

We do! Imagine a car without a starter switch, a jet plane without an engine, a TV set without a picture tube, a computer without a memory, a Fourth of July without fireworks, a new house without insulation.

We take for granted these and other necessities and conveniences so familiar in and critical to our lives. How many of us stop to think where we get the strontium, beryllium, chromium, columbium, cobalt and rutile that go into making these items?

They do not necessarily come from Alabama or New York, or from France or Germany. While some important resources do come from U.S. reserves and from allies, this country is becoming increasingly dependent on imports from the Third World. We rely on foreign sources for 24 or 32 so-called "strategic" or "critical" minerals.

As of 1979, the United States imported all of its graphite (crystalline flake), ferrocolumbium and natural rubber and more than three-quarters of its strontium, tin, bauxite, zinc and cobalt from the Third World. The countries of Africa supply the world with 67% of its refined cobalt, 61% of its gold, 45% of its platinum metals and 70% of its diamonds. Central America and the Caribbean produce 45% of the world's strontium. Eighty-two percent of the world's columbium comes from South America.

Most Americans realize that the current energy crunch is largely due to our dependence on imported oil. But few realize that imports of other minerals also affect their homes, families, vacation travels and work.

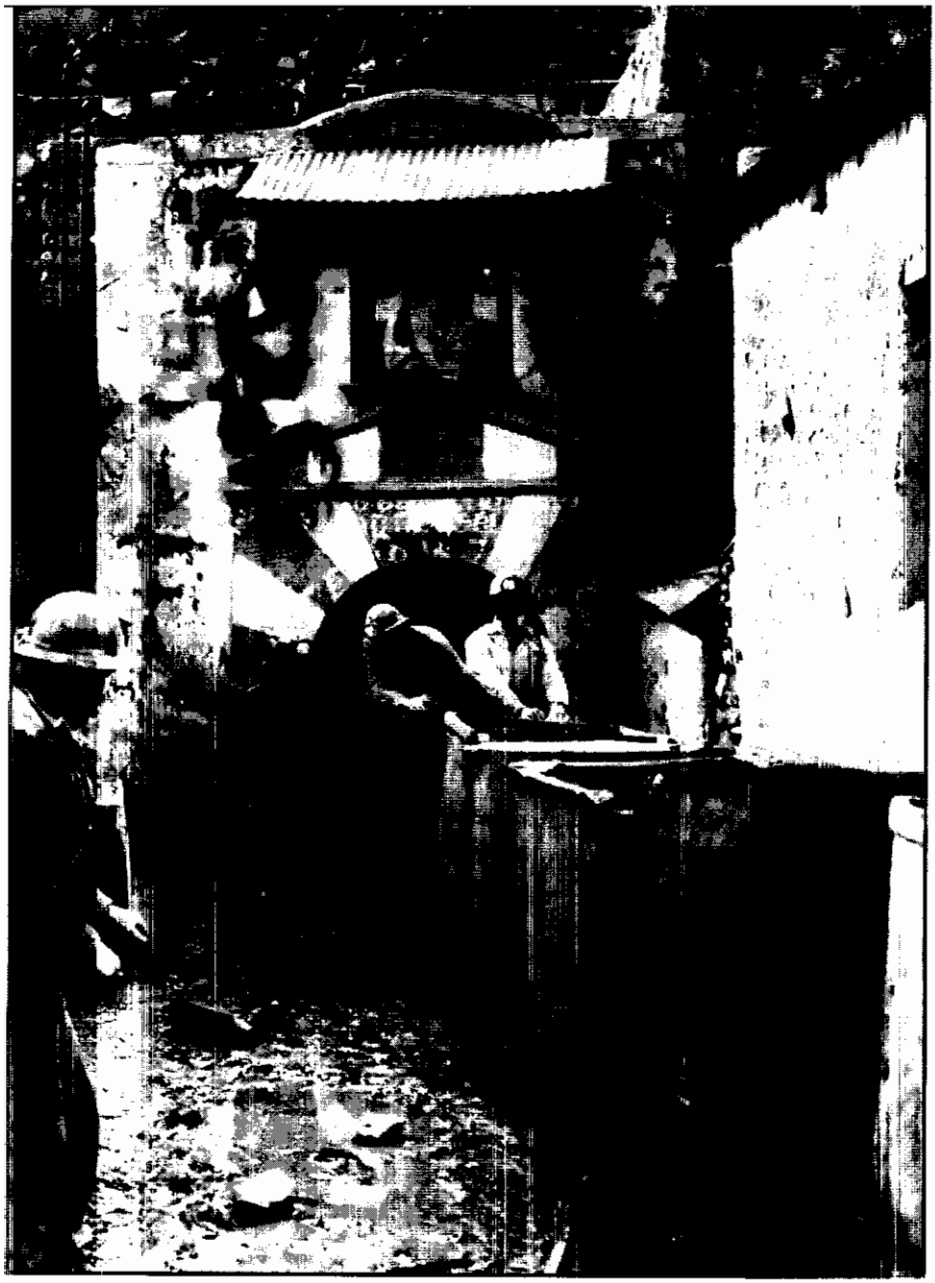
Taking them for granted could be dangerous to our way of life.

Tonight, when the evening news comes on, keep in mind that the strontium used in making the glass for your color television picture tube probably came from Mexico. Remember that the fireworks you oohed and aahed over on July 4 contain strontium. Next time you travel by plane, train or car, think about the cobalt used in the engines—it came from Zaire and Zambia. Graphite, used in auto brakes and in the lighter-than-aluminum airplane bodies, is imported from Madagascar and Brazil. The silver in photographic films and supplies is shipped mostly from Peru, Mexico, and Chile.

Since we are dependent on other, sometimes not too friendly countries for minerals and natural resources, what are we going to make sure we don't run out or run short of them? In a recent World Affairs Council report, "The Resource War in 3-D—Dependency, Diplomacy, Defense," 16 experts note the serious threat of inadequate supplies of U.S. strategic minerals.

They suggest that the United States needs to better coordinate its resource needs with its domestic and foreign policies. They cite U.S. government environmental, safety and health regulations as preventing effective competition of the U.S. mineral industry with foreign mineral firms.

Daniel Fine, at the Massachusetts Institute of Technology's mining and mineral research facility, presents additional evidence for U.S. concern. He contends that the Soviet Union has engaged in a resource war with the United States. He claims the Soviets have shifted from their traditional policy of mineral self-sufficiency and raw material export to the Western world to a policy of



Aymara Indians mine raw tin ore in Bolivia.

"strategic resource dependency." Fine points out that the Soviets are expanding their military activity to project power in their competition for Third World energy and minerals.

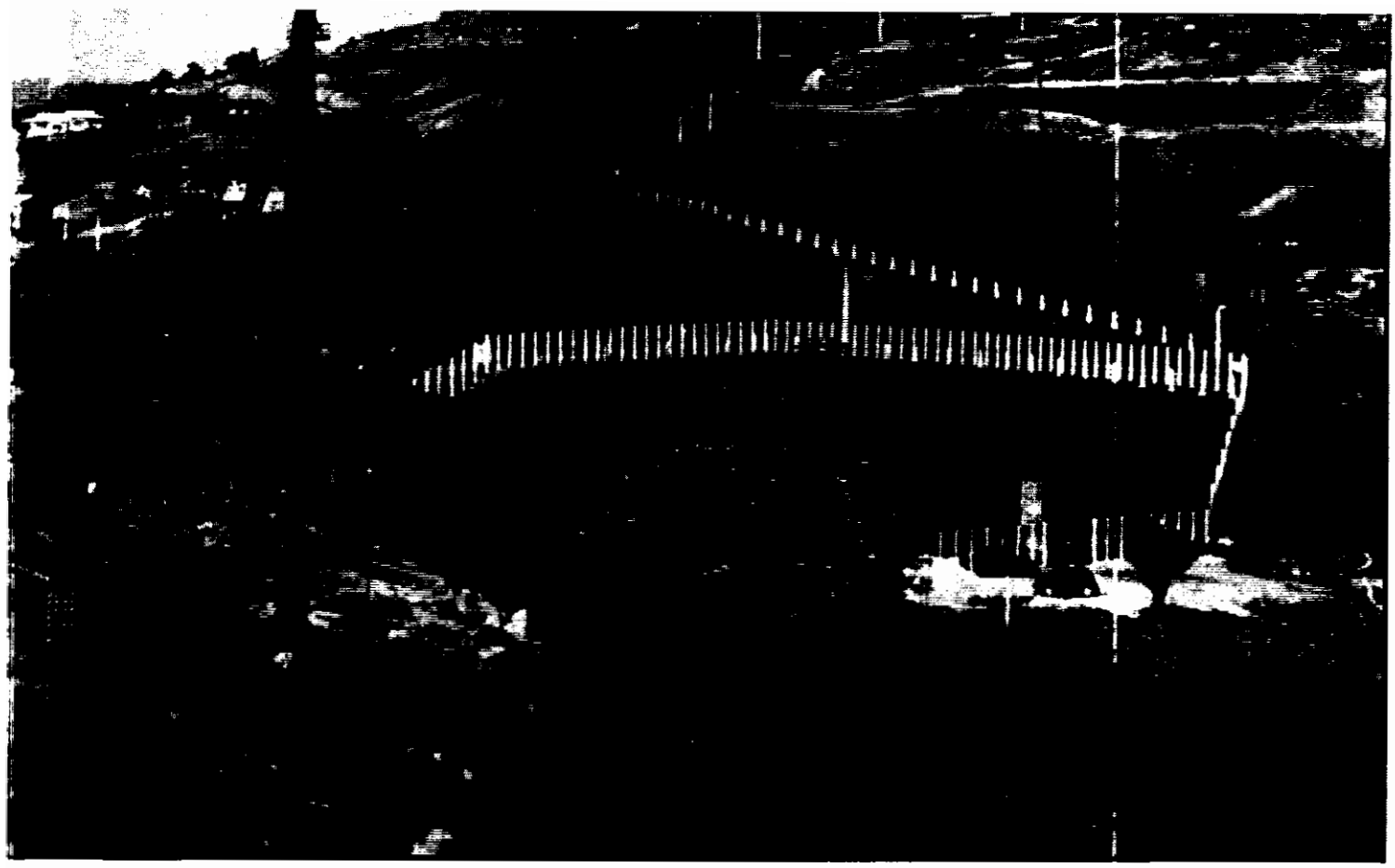
"The Soviet invasion of Afghanistan serves as one example of where Soviet military infiltration assured mineral resources," Fine states. The invasion of Kabul insured the Soviets an "estimated 500,000 tons of resource potential to supplement lower-grade Soviet materials." The resources include oil, gas, coal, chrome, iron ore, copper, bauxite, beryl and fluorspar. The Soviets have also gained access to mineral sources in other developing countries through technical and economic assistance projects for mineral development, he points out.

How does this affect the United States? For one, more countries are competing for the same resources, causing prices to skyrocket and straining supplies. Western European countries and Japan depend on Third World mineral exports even more than the United States. An example of how prices are affected: When Cuban-trained troops invaded the Shaba province of Zaire in 1978, cobalt mining was halted for months. The price of cobalt shot up from $6.85 to $50 a pound.

A second danger lies in the vast concentration of strategic minerals in unstable geographic regions. More than half of the world's cobalt reserves are in Africa. Belgium and the United Kingdom, nations friendly to the United States, export cobalt to this country, but their supplies originate in Zambia. Fifty-five percent of the cobalt this country needs comes from Zambia, which is bordered by Mozambique and Angola. All three countries are host to military stations of several nations hostile to the United States—Cuba, East Germany and the Soviet Union.

Finally, the United States is forced to exploit its limited domestic mineral resources while the Soviets maintain an undeveloped Siberian stockpile.

A study by the Brookings Institution presents another, much more optimistic view. "Trade in Primary Commodities: Conflict or Cooperation?" suggests that the world will not have increasing shortages of primary commodities despite increased competition. Economists from Japan, Europe and North America explain that world mineral reserves have grown along with consumption. Since mineral exploration and tests are



The power house, sinter plant and storage area shown are critical to this manganese mining operation in Ghana.

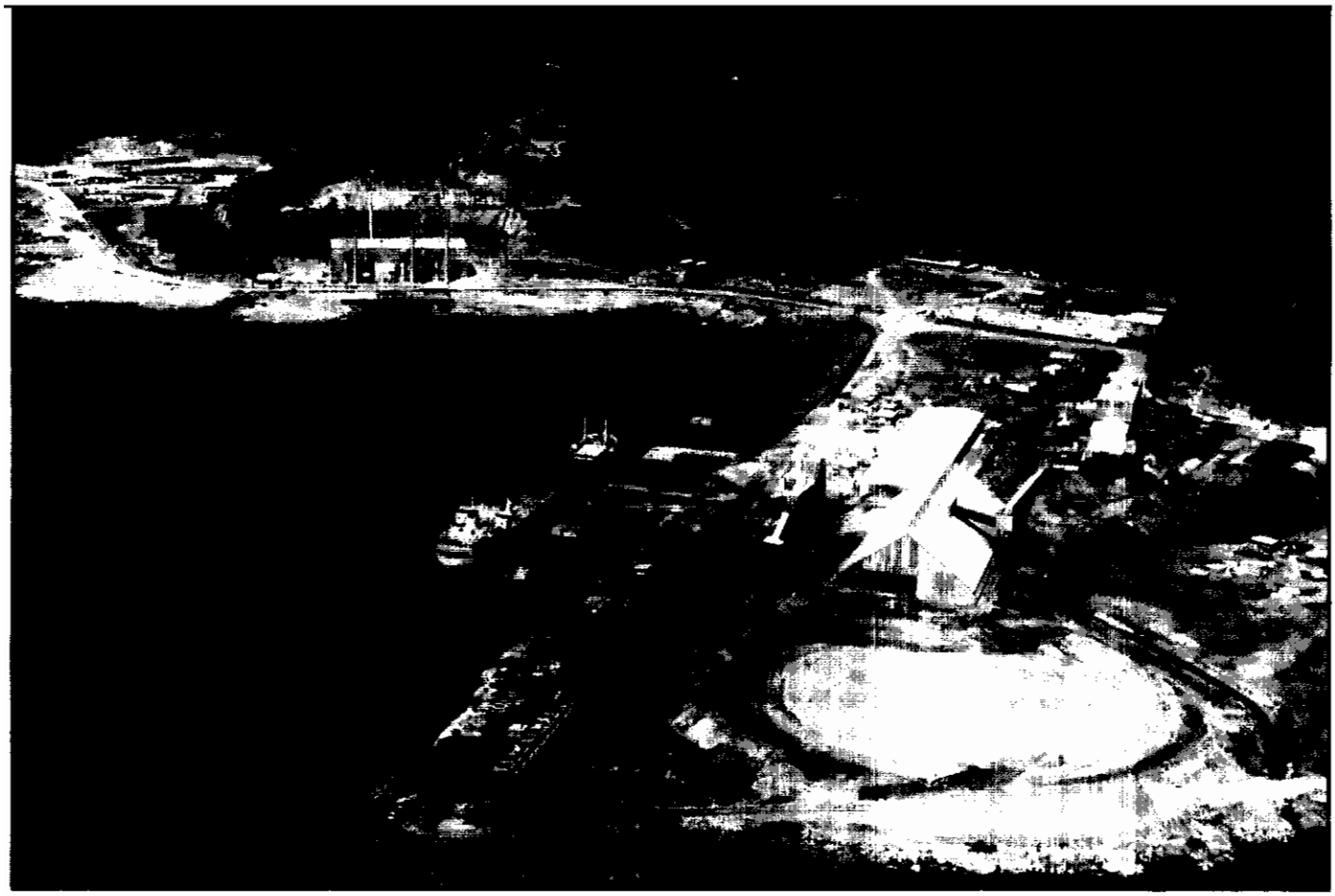
costly and an increase in stated deposits increases a company's tax liabilities, they claim that proven reserves are understated. Therefore, for example, as economic expansion took place between 1950 and 1970, "iron ore and bauxite reserves grew by more than five times, nickel by more than three times and copper reserves more than doubled."

The Brookings study also denies the possibility of OPEC-type cartel for critical minerals and lists factors of a successful cartel: high demand, lack of substitutes, an export market and limited supply. Importing countries can always turn to recycling scrap or other alternatives. Furthermore, it continues, political and economic diversity between mineral-producing countries hinders any long-term success of cartels. Attempts at mineral cartels go back to the late 1960s, but these attempts have failed, mainly because of political differences and negative long-term impacts. Cartels for copper, mercury, sulfur and nickel have had only short-term success. The need for most countries to maintain relatively liquid foreign exchange earnings also thwarts attempts to formulate cartels.

One fact that cannot be challenged is the weakened competitive edge of the U.S. mineral industry. Environmental and safety regulations requiring large expenditures of capital for pollution control and safety equipment; high or floating interest rates on capital financing; costly processing required by low-grade U.S. minerals; insufficient tax incentives; and employment rules and restrictions—all have contributed. The result: Many domestic mineral processing firms are moving overseas, increasing U.S. mineral dependency on foreign sources. One thing on which studies agree is that such dependency has a negative impact on U.S. foreign policy.

Part of the answer to the problem is stockpiling. In 1939, legislation was passed to set up stockpiles of strategic and critical materials for national defense. Because of inadequate U.S. mineral supplies during and after World War II, Congress revised the act, calling for larger

Once copper is mined it is refined by an electrolytic process



Copper concentrate for export is loaded at the rate of 1,200 tons per hour at Bougainville Copper's port in Papua, New Guinea.

stockpiles and developing U.S. sources. The 1946 Stock Piling Act provides up to a three-year stockpile of each of 93 materials. Eighty of these materials are mineral and 13 agricultural, such as grain, castor oil (used to make nylon; mainly imported from Brazil) and opium (being stockpiled for medical purposes in the event of nuclear war, according to the Federal Emergency Management Agency; imported from India and Turkey).

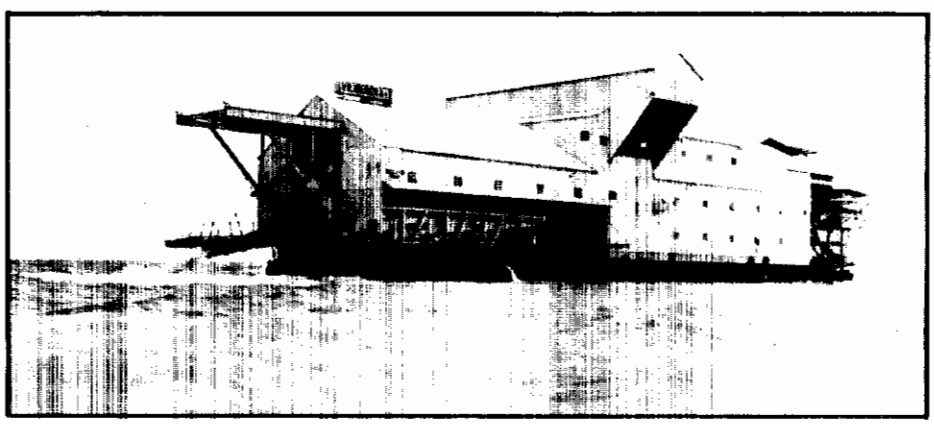
Some of our most important minerals, where they come from and what they're used for:

Bauxite: 88% of what the United States needs comes from the developing countries, mainly Jamaica and Guinea. The rest is mainly mined in Arkansas. Used in the production of alumina, airplanes, abrasives and refractories. The U.S. stockpile goal is 7.1 million tons. Current inventory is half that amount.

Beryllium: Brazil is the major supplier, followed by the People's Republic of China and Rwanda, a tiny African country. U.S. domestic production started in Utah in 1969, but imports still account for 74% of U.S. needs. The major use of beryllium is as an alloy with copper for electronics, computers and communications equipment. It is also used in the aerospace industry—in missiles, aircraft, satellites and space vehicles. The strategic stockpile goal has almost been met. Another optimistic factor about beryllium supplies is that the United States expects to meet its own demand by the year 2000.

Cobalt: The United States imports 94% of its cobalt; more than 75% comes from developing countries, mainly Zaire, followed by Zambia and Belgium. Idaho has the only high-grade cobalt ore in the United States, but its mines were closed in 1959. All domestic mining of cobalt ended in 1971. Cobalt is used as an alloy in marine equipment, jet engine parts and industrial turbine engines; in magnets for loudspeakers and telecommunications equipment; and as a soil fertilizer. The stockpile is only halfway met.

Columbium: The United States is 100% dependent on imports; Third



A dredge used in offshore tin mining in Indonesia.

U.S. tin stockpile.

World countries such as Nigeria, Brazil, and Malaysia supply more than half. Brazil is the sole supplier of ferrocolumbium imports. The United States consumes 20% of world columbium supplies. It is used in steel beams and girders for buildings and offshore drilling towers, special industrial machinery, oil and gas pipelines, railroad equipment, cars and ships and by the nuclear and aerospace industries. Colorado's Gunnison County is the largest potential domestic site for columbium mining, but processing makes it more expensive than imports. The stockpile goal is half met.

Tantalum: Developing countries supply the United States with about 46% of its need. Uses include production of electronic capacitors, metal-working machinery such as cutting and farm tools, chemical equipment and nuclear reactor components. It has not been domestically mined since 1959. The present stockpile goal is 7.16 million pounds, current inventory is 3 million pounds.

Copper: Rapidly becoming the 25th strategic mineral upon which the United States is dependent. Two-thirds of U.S. needs comes from the Third World, mainly Chile and Peru.

The Federal Emergency Management Agency (FEMA) manages stockpiles in 116 locations throughout the United States. Estimated value of the stockpiles is $18.7 billion. The stockpiling program has limited congressional support because of its cost. Some experts say that the price for completing stockpile goals will be as much as $6 billion. $100 million was appropriated for fiscal 1981, but according to Robert Mroczek at FEMA, the agency expects funding for stockpiling to increase.

There is concern, albeit limited, about what Secretary of State Haig refers to as "the era of the resource war." James Santini (D-NV) chairman of the House Subcommittee on Mines and Mining, cautions that we are in "a post-Iran, hostage-terrorist world in which some mineral producing countries have nationalized foreign mineral interests and have threatened to deny raw materials if their economic and social demands are not met."

Last September, the subcommittee called for several changes in present U.S. mineral policy including anti-trust laws; consideration of future mineral production before land classification is adapted; accessibility of federal land for domestic mineral production; U.S. support for research and development; and Defense Department involvement in mineral policy.

In 1977, Sen. James McClure (R-ID) introduced a bill that set stockpiling goals based on U.S. import dependence for each material. There was also a requirement that any funds received from stockpile sales be used for future purchases of stockpile material. Several amendments, however, prevented the bill from passing.

A "barter clause" in the 1974 Foreign Assistance Act gives the President the power to barter foreign assistance in "exchange for a necessary or strategic raw material."

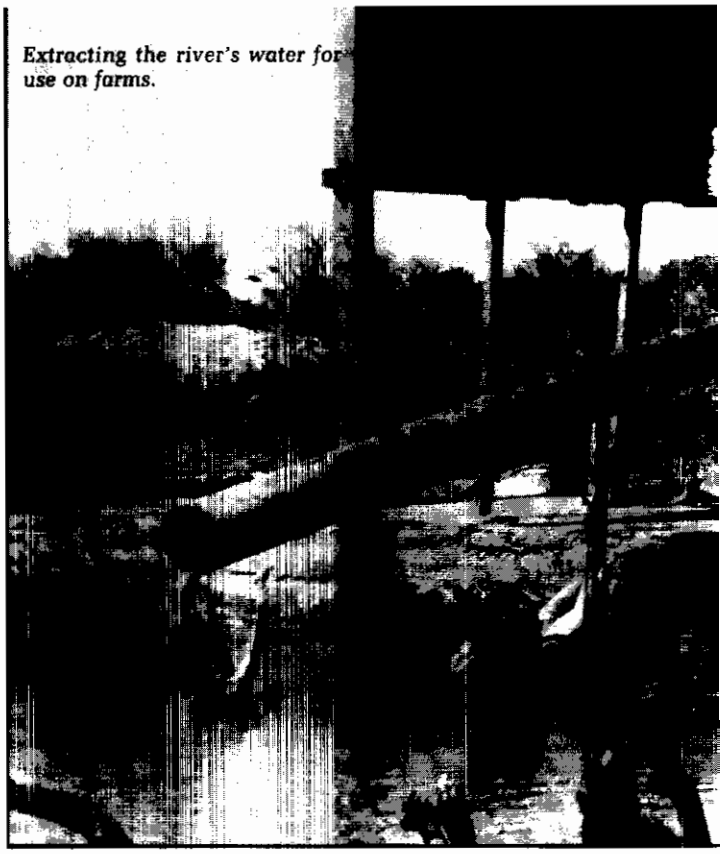
The United States is faced with the problem of developing a cohesive domestic and international mineral policy. Obviously, as the experts point out, we cannot afford to put off action until a crisis evolves—U.S. domestic and international mineral sources are too insecure and unstable. They insist that if U.S. defense capabilities and the U.S. economy are to improve, critical and strategic minerals must be readily available.

Santini points out it takes 10-20 years to start production from the time of initial discovery of a mineral, yet the federal government continues to restrict domestic mineral exploration through capital financing and environmental regulations. As a nation that consumes more than 30% of the world's wealth with only 6% of its population, the United States has a very important interest—its security and its economy—in the Third World.

Georgia Sambunaris is on the legislative and public affairs staff of the International Development Cooperation Agency.

HOLDING THE SAHARA AT BAY

The Senegal River may stop the flow of sand, and answer critical food shortages.



Extracting the river's water for use on farms.

A look at a 1980 map of West Africa reveals that the Sahara Desert stretches 75 miles farther south than in 1973.

The shifting sands are part of a series of events that included a devastating drought in the late 1960s and early 1970s, which killed thousands of people and animals and left the area known as the Sahel economically crippled. As increasing food shortages continue to threaten the lives of people in the Sahel countries, planners are turning with growing urgency to irrigation to produce more food.

The virtually untapped river basins in the area offer a means to that end. One of the major rivers is the Senegal, part of which forms the north-south border between Mauritania and Senegal. Senegal's eastern neighbor is Mali, through which the Senegal River flows for nearly 400 miles.

The Senegal River Basin is particularly critical for the area's development because it runs through several different climatic zones. Rainfall averages from 12 inches during the July-September period in the north, to 80 inches during May-October in the south. By the end of the dry season, surface flow often disappears. Result: extreme variations in rainfall and consequent flooding and runoff, making it difficult if not impossible for farmers to plan.

Although local farmers have ways of planting that minimize losses during flooding, production has been low. The area that is planted varies from 25,000 acres to 247,000 acres each year, depending on the extent of the floods at any particular time. And, while farmers are not unfamiliar with irrigation, controlled irrigation is a new concept.

Experts believe that with proper control, the Senegal can provide irrigation for as many as 1.6 million people—14% of the population of the three states the river borders or passes through. There is no disagreement that harnessing the river can help turn about declining per capita food production. During the 15 years between 1960 and 1975, the region's population grew at 2.6%, exceeding the 2.3% growth of food production.

AID, which has become increasingly interested in helping the Sahel countries (Senegal, Mali, Mauritania, Niger, Cape Verde, Gambia, Upper Volta and Chad), has been working along with other donors, on development projects in the Senegal River Valley.

Within Senegal, AID is supporting the Senegal government's efforts to achieve a more diversified agriculture, moving away from heavy dependence on one crop—peanuts—and producing more rice. The danger of overdependence on one crop was shown last year, when less than 400,000 tons of peanuts, about half the normal yield, was harvested. AID is especially interested in irrigated agriculture. Controlled irrigation means that farmers will not have to rely on the whims of weather as they did last year when the rains came to Senegal nearly six weeks late, causing some rice as well as peanut shortages.

AID funding for the Senegal government's Society for the Development and Exploitation of the Land of the Delta (SAED) consists mainly of training for SAED staff associated with the management, operation, maintenance and repair of agricultural and heavy and light equipment and vehicles. SAED has been successful in bringing 27,000 acres of land along the Senegal and a tributary under cultivation, mainly in rice.

SAED projects cover areas from 20 to 1,000 acres. AID support has been for the smaller areas, mainly in the upper river valley on the border between Mauritania and Senegal. One of the areas being developed is Bakel. Irrigated farming techniques are being introduced to 24 villages with more than 30,000 people.

The project is a direct result of actions taken by a farmer in the village of Koughani. The story is somewhat akin to a fairy tale with a happy ending. While traveling in Europe, the farmer observed the agricultural methods being used there. When he returned to his village he bought a pump and a rotary tiller. But because of insurmountable technical and logistical problems, including lack of fuel, spare parts and mechanics, his equipment couldn't be used. He realized that if he and other farmers were ever to produce enough food they would need expert assistance. He wrote an official in a French agency whom he met when he worked in France. The organization, short on funds, contacted various donors and private voluntary organizations and succeeded in getting two British agencies to provide initial financing.

Extension activities in Bakel grew. SAED provided pumps and technical advice, and AID pitched in with pumps, tools, technical expertise and studies.

The first harvest of rice, corn and vegetables, with rice yields much greater than previous harvests, was impressive. Food production increased by as much as 68%, marketable surplus by as much as 23%. The two major ethnic groups in the area until now have farmed according to the traditional rainfed practice dictated by their cultures. But more and more Bakel farmers are asking for their fields to be irrigated. They recognize that their risks—variability in rainfall, pest damage and limited storage capacity—are lowered through water control that reduces yield variation and increases average yield, hence boosting income.

AID technician Khoi Le is quick to credit farmers' involvement in the project. He reports the men and women have organized in "groupements," or production units. Most of the groups manage collective farm plots as well as individually owned ones. Money earned from village fields pays collective debts before being divided among the workers.

Because diesel pumps are expensive to run and maintain, an experimental solar-powered pump project will join the on-going and proposed activities to develop the river basin. Initial costs will be high, but as it goes into full operation and as farmers are trained how to use it and keep it in good shape, it may well offer an attractive alternative. By next year's planting season, the solar pump will be irrigating 120 acres.

Increasing attention is being paid to integrated development of the Senegal River Basin and to utilizing the finances and efforts of many donor nations and organizations. A number of donors are providing funds for construction of two dams, a multipurpose upstream dam at Manatali and a low dam at the mouth of the river at Diana to prevent salt water intrusion. When these dams are completed, nearly 800,000 acres could be open for irrigated agriculture. In addition, the dams will provide electricity and make the Senegal River navigable to Kayes in Mali.

Although AID is not helping finance the dams, it has been involved in the efforts of OMRS, the river development organization of Senegal, Mali and Mauritania. It assessed the environmental effects of the dam construction, is carrying out aerial mapping of the basin and has supported a socioeconomic study and agronomic research. AID is now developing a multiyear integrated development plan to help the countries and people of the area realize the benefits from the dam. The project will include improvements in food and livestock production, crop diversification, resettlement of people displaced by the construction of farm-to-market roads and monitoring of health changes in the area.

It is hoped that this project will help the people of the Senegal Valley eventually produce enough food to eat, with a surplus to sell. In addition, it is expected that feasibility studies, done as part of this project, will lead to major multidonor projects that will increase the ability of countries of the Senegal Basin to meet their mutual development goals.

Contributing to this article were Linda Worthington of AID's Mission in Senegal and the AID Senegal Desk in Washington.

The High Cost Of Recovery In the Sahel

by Arthur M. Fell

Recurrent costs could spell doom for development efforts.

For many years development practitioners have known that the failure of governments to meet operating and maintenance expenditures is the cause of many project failures. Dilapidated schools, hospitals without drugs, abandoned irrigation installations, impassable roads, immobilized trucks and tractors and the like are not uncommon in developing countries. An accumulation of such project failures calls into question entire investment programs and the result is poor economic performance. Yet, until recently, development administrators and academic economists paid astonishingly little attention to the problem of "recurrent costs." It has been no different for the countries of the Sahel.

The Club du Sahel was launched in 1976 to help the Sahel countries of West Africa, victims of drought, promote and harmonize their policies and interests. Besides helping to mobilize resources to achieve regional food self-sufficiency, the Club has studied and acted on key issues in such areas as energy and cereals policy. In 1976, the organizers of the Club du Sahel hoped that the Club would encourage donors to provide more concessional assistance. As it has turned out, it has been extremely successful on this count. Concessional commitments to the Sahel rose from $755 million in 1976 to $1.7 billion in 1979, more than a 50% increase in constant terms and more than three times the per capita level of increase registered by the rest of Africa.

However, the planners of the Sahel program foresaw that, as more resources flowed into the region, numerous new projects with claims on national budgets would be initiated. Given the tendency of donors to finance projects often for only three to five years, usually underestimating the time it takes to set a project in motion, it became evident to the planners that Sahel governments were going to incur increasing and recurring costs to keep those new projects maintained and operating. A problem of "recurrent costs" of some magnitude was brewing.

Thanks to the foresight of the Club

du Sahel, whose membership includes the United States, France, Netherlands, Switzerland, Canada, the European Development Fund and other donors as well as the Sahel countries themselves, a wide-ranging study of the recurrent costs in developing countries has been carried out; the study focuses on the Sahel Development Program.

The Brandt Commission Report refers to the Club du Sahel as a new form of organization for regional planning and financing in developing countries. The Club, says the report, enhances mutual trust, increases the likelihood that projects will be carried out, and increases the countries' ability to put grant or loan funds to work. The organization of the recurrent cost study by the Club du Sahel illustrates how the Club deals with overriding development problems that are beyond the capacity of donors and Sahel countries acting alone.

To do the study, the Club formed a working group on recurrent costs so that representatives of Sahel governments, donors and consultants could pool their efforts to diagnose the problems and propose recommendations. Financing for this came from several sources. AID provided funds to engage the Harvard Institute for International Development (HIID). Canada financed work by the Center for Research in Economic Development at the University of Montreal. The French, Dutch, Swiss and Belgian governments paid for consultants' salaries or assigned experts to work on the study. The International Monetary Fund, the World Bank, the European Development Fund and the OECD participated. Sahelian consultants were recruited to work on various aspects of the study. And most important, Sahel governments assigned their officials to work alongside the others. The working group succeeded in drafting a plan which called for work on both the project level and on national budgets.

On the project level, the working group made field analyses of 29 development projects in agriculture, rural water supply, livestock, fisheries, forestry, health, education and transport infrastructure. On the national level, the budgets of all eight Sahel countries were analyzed.

The final product was the result of close international cooperation between donors and Sahelians.

The working group investigated the concept and definition of recurrent costs and distinguished recurrent costs from economic costs. It analyzed the recurrent cost coefficient (or "r" coefficient), a ratio that says, for example, that the annual maintenance costs of a building equal X% of the building's original cost or, to take another example, that teacher salaries and other operational costs represent Y% of a school's original construction cost. This ratio is a tool used in analyzing recurrent costs but its calculation involves certain difficulties and it varies between sectors and countries.

In its report, the working group points out that using and maintaining resources optimally does not mean following any given project design rigidly.

Using the analytic tools and information developed by such technical studies, the working group found that in 1982 the countries of the Sahel would show a deficit of $180 million. This deficit represents the difference between expenditure commitments for public programs and planned receipts (Chad was not included in this calculation because of conditions there). This estimate assumes that projects will be operated and maintained according to design and that policies of both recipient and donor countries stay the same.

Either the deficit will be made up by short-term balancing funding or it will not, and to the extent it is not, projects will suffer. The working group reviewed the policy options available to reduce the estimated deficit both on the revenue and expenditure side.

With respect to increasing revenues, it found little room for maneuvers to increase taxes. (However, in some cases the possibility of replenishing coffers may exist through user fees.) The group recommended that policy discussion should focus on expanding the tax base. This would involve review of

three government policies: the tendency of the public sector to absorb critical manpower and capital; overcoming suspicion of the private sector; and underevaluation of the cost of capital and foreign exchange.

On the expenditure side, the government's obligation to guarantee public sector employment to secondary school graduates, and to finance deficits of public enterprises, act as severe constraints to reducing expenditures.

The working group found a series of problems. For instance, it may take as long as 15 years for an integrated agricultural development project to achieve an effective cost-benefit return. The impact of recurrent costs is either not estimated in project design (in fact, few project papers consider this issue properly) or is substantially underestimated. Frequently there are other errors in conception or execution. Unsuitable or inadequately tested methods have been introduced; supervisors have been poorly selected. The time needed to start a project is grossly underestimated. Projects have been carried out on too large a scale. Obviously, the economic and social costs of failure are higher when projects concern large numbers of people. There is a tendency to try to keep projects alive when they have proved to be failures.

Based on its study, the working group put forward 21 recommendations to the Sahelian governments, international finance agencies, the CILSS and Club du Sahel. They call for increasing the Sahel countries' real tax base through broad, national policy reforms that accelerate the growth of private sector production, improvement of project preparation and implementation procedures, increased efficiency of recurrent expenditures, introduction of cost recovery procedures based primarily on user charges, reorientation of transfer mechanisms for public development assistance; and support by donors for macroeconomic policy reforms by Sahel countries.

The Club du Sahel and CILSS are continuing to work on the recurrent cost problem with the support of the International Monetary Fund and the World Bank. A work session, scheduled for November, 1981 in Ouagadougou, Upper Volta, is in the works. There, Sahelians and donors will try to determine further steps to put the recommendations to work. Already, all are giving more attention to the problem of recurrent costs in project designs.

At the least, one can say that in the Sahel Development Program the issue of recurrent costs has not been brushed aside. The study represents a uniquely collaborative effort by the international community and Sahelians. Difficult policy issues for donors and Sahel countries have surfaced. Solutions to such problems are not easy. But if defining a problem is half the solution, clearly a good beginning has been made.

The full title of the recurrent cost study is: "Recurrent Costs of Development Programs in the Countries of the Sahel—Analysis and Recommendations," August 1980, Club du Sahel/CILSS. A limited number of copies of a summary of the study is available from: Secretariat, Club du Sahel, OECD, 2 rue Andre-Pascal, 75775 Paris Cedex 16, France. □

Arthur M. Fell is the U.S. representative to the Club du Sahel and OECD.

The Sahel region is composed of the West African nations of Cape Verde, Chad, Gambia, Mali, Mauritania, Niger, Senegal and Upper Volta. Although poor, it has considerable untapped potential. Per capita GNP averages only $200. The region has a total population of about 30 million and is about two-thirds the size of the United States. Sahelian countries share common physical and economic characteristics—low and variable rainfall; an economy based on agriculture; limited industrial opportunities; exports concentrated on livestock, cotton and groundnuts with export earnings falling behind the rising costs of imports.

After the serious Sahel drought peaked in 1972-73, the Sahelians and the international community organized for the long-term development effort needed to avoid disastrous effects in future droughts. They created the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and the Club du Sahel to plan, coordinate and promote a development program for the region focused on the goals of food self-sufficiency with ecological balance and self-sustaining growth, all by the year 2000. A strategy to attain these goals was prepared by the Club-CILSS, together with a program of projects covering all of the related sectors (agriculture, food, health). As a result of these and other efforts by the Club-CILSS, yearly assistance to the Sahel countries from the 23 bilateral and multilateral donors rose to $1.7 billion by 1979. AID plays an active role in this international framework and U.S. assistance to the Sahel accounts for about 8% of the total in an average year.

Africare, helping to foster a better life for Africans—and for Americans a better appreciation of Africa's problems.

Following is an interview with C. Payne Lucas, director of Africare. Africare is a non-profit, voluntary organization concerned with providing needed human services to people who live in rural Africa. Its purpose is to improve the quality of life for rural Africans through programs of food production, water resource development, and health care.

Q. What is the origin of Africare?
A. Africare grew out of a health program in Niger started by an ex-Peace Corps volunteer physician, Dr. William Kirker. At the end of his tour, the Peace Corps decided to discontinue his contract since he was principally involved in clinical medicine and the Peace Corps focus was on preventative health. Kirker went to the government of Niger and asked for support for a voluntary organization to be called Africare. It was supposed to provide assistance to one region in Niger where Kirker had previously worked. The program recruited volunteers but soon ran out of money. The then President of Niger, Hamani Diori, a friend of mine from days when I was Peace Corps regional director in Africa, wrote to me and asked if I would

take over this responsibility and direct the effort backstopping Kirker's work in Niger. I was prepared to do this if Africare's program would be made Africa-wide with an emphasis on food production and with direction to galvanizing black Americans to give to Africa. The president thought this was a good idea. I resigned from the Peace Corps to reorganize Africare. That was in 1971.

Q. How large an organization is Africare now and what type of staff have you recruited?
A. Our total staff in both Africa and Washington is 65. Roughly 40 are in the field. We're the most democratic private voluntary organization in America. We are putting together an institution managed and directed by black people, yet our staff includes people of all races. We have white specialists, Cambodians, Jamaicans, Haitians, the former minister of health from Dominica and even two refugees from Afghanistan.

Over 80 years of experience are represented. All our people have been either in the Peace Corps or in AID. Nearly all speak at least two languages. Our staff is made of people who have worked abroad nearly all their lives.

Q. Where in Africa are you operating today?
A. Now we have offices in Mali, Niger, Senegal, Upper Volta, Zambia and Somalia. In addition, we have programs in Egypt, Sudan, Guinea, Rwanda, Zimbabwe, Mauritania, Gambia, Uganda and Ethiopia.

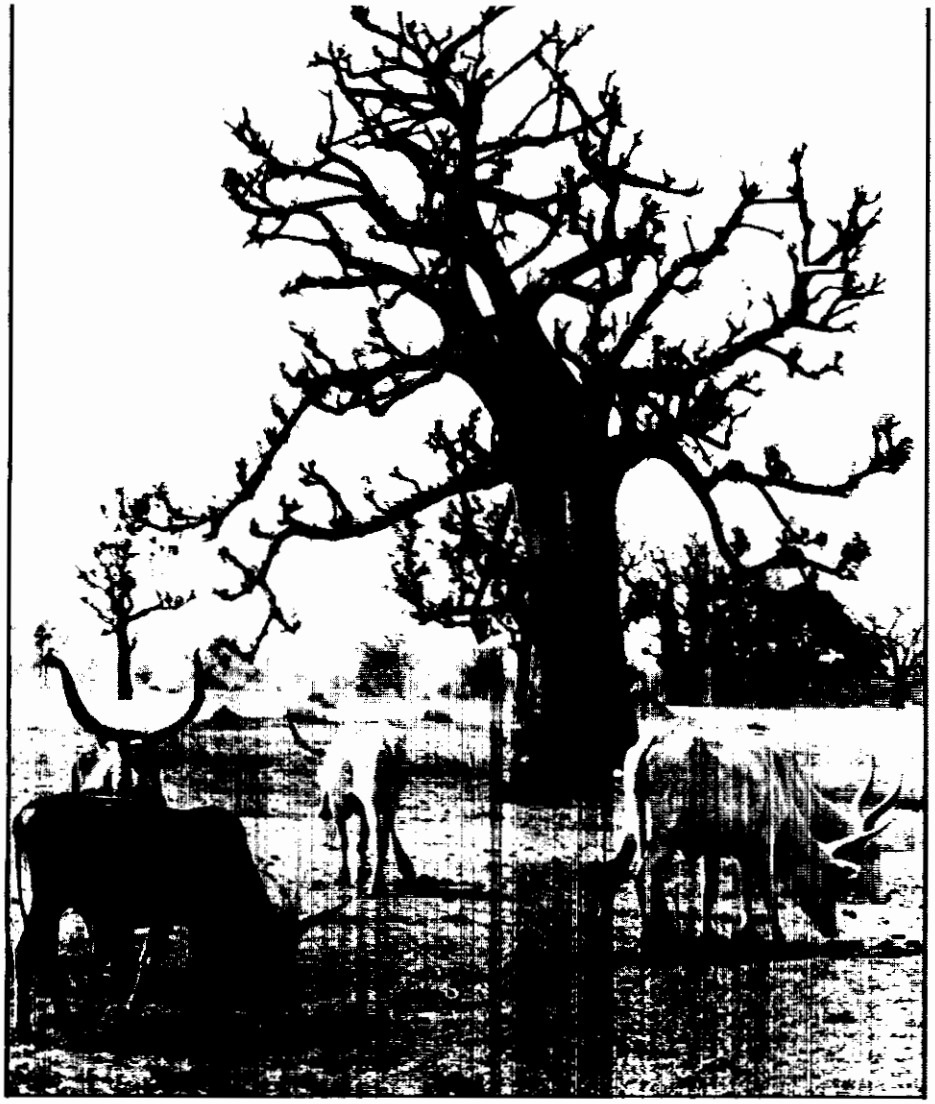
We have more of our work concentrated in the Sahel than in any other place in Africa. We began there. A larger percent of our staff—75%—is concentrated there. I guess roughly 75% of our resources are based in the Sahel. We are becoming more and more involved in southern Africa, particularly Zambia, Zaire, Zimbabwe and Somalia, naturally, because of the refugee problem. We are also trying to provide some hospital material assistance to Rwanda and the Sudan.

Q. Where do you see the greatest potential for development in Africa?
A. Southern Africa is the future of the continent. Zaire, Zimbabwe and Zambia form the food axis of Africa. If the United States and other Western nations could put the resources into that part of the world, then it would become an enormous breadbasket for the African continent, and feed Europe as well.

Africa is a food-deficit continent. It has no business being a food-deficit continent. Zambia, Zimbabwe and Zaire have all the needed natural resources to be a major food production area. If these nations would produce the food that they are capable of producing, the whole stability of the region would change overnight. If I were running AID, I would place a big part of my development resources here.

Q. What kind of investment is needed here?
A. It's creating the right kind of agricultural policies. It's human investment. It's providing the right kind of training for Africans in agriculture and extension work. It's the right kind of pricing policies for products produced by farmers. All of these come together to form a policy that makes sense.

Q. Can you identify and comment on some of your programs?
A. There are a number of villages in Upper Volta where we have initiated irrigation projects and the development of vegetable production. These projects were initially funded by the Lilly Endowment and private donors. In this area of Upper Volta, farmers never grew anything but millet before. Now they are successfully growing a food—vegetables—they haven't eaten before. They are raising enough for consumption and for export.



In Mali, where villages did not have rural dispensaries or safe water supply, we have helped provide the wherewithal to build wells. The villagers have done it themselves.

In Niger, we worked on the development of an irrigation program in the Irhazer Valley north of Agadez to resettle nomadic families. This valley has enormous ground water reserves. Some years ago the French went there looking for uranium. Instead of uranium, they found water. They just capped up the holes, covered the ground and left. Now we have the Tauregs and other nomads looking for these holes. We uncover the holes and put in deep wells to irrigate the land and provide water for the people, the cattle and for growing sorghum, millet and other crops.

It is interesting. People have said that you cannot deal with the nomads. But the adversity of the drought has demonstrated once again that people all over the world, regardless of their religion and race, seek for themselves the same things that all men seek: a decent living, decent health, recreation, education and a little stability in their lives.

In conjunction with Texas Tech University, we have designed a 700,000 acre ranch north of Goure, Niger. It will not only serve as a ranch, but there will be mixed agriculture, health facilities and educational and other social services. This ranch is designed to be large enough to accommodate the nomads and give them a chance, since it will have rotational and controlled grazing.

We also have a hospital in eastern Niger and have designed a comprehensive health care program for the entire Chad basin.

We are also involved in short-term projects that address immediate problems.

We do some things large and some things small. Now, in Upper Volta, all the programs that we have worked on in vegetable production, and water resource development started out with small grants from private foundations, individual donors and church organization communities. The program has grown into a large integrated rural development project funded by the Agency for International Development. We took the initial risk. This goes to show you what you can do with some money, a private volunteer agency and good support from the host country, a good AID mission, as was the case in Upper Volta, and good AID personnel back here. We put this program of integrated rural development together in Upper Volta in a rural region affecting 1,100 people. There are a lot of problems with this project. There are activities behind schedule, but some are doing better than we had ever anticipated. The simple truth of the matter is that here is a project that grew out of the villages and Africare and all the donor community working together. It is an example of what can be done when a group of people work together.

Q. What percentage of your efforts now go toward long range development and what percentage toward relief?

A. I would say 85% of our whole effort is toward long range development. At Africare, we're running on three tracks. We're running emergency relief, small village self-help kinds of programs and then we have the larger programs funded by the foundation community including such multimillion dollar, AID-financed projects as the one dealing with rice production in Zambia.

Q. To what extent do you interact with other PVOs in the field?

A. We had two meetings last month that looked at evaluating refugee programs. We also looked at the funding because we are concerned with how much money volunteer

agencies raise and how much of it is getting overseas. Now Africare, the Peace Corps and AID are working on a number of interesting programs. We're doing a big fish culture project in Mali. We designed the program with the Peace Corps. We're using Peace Corps volunteers as fisheries experts and AID money and supervision as well as direction from Africare and the government of Mali.

We're doing the same thing in a big forestry program in Senegal. In the old days of the Peace Corps, that (cooperation) was unthinkable. The simple truth of the matter is in competition for scarce resources, the pressure for them is so great that you have to work with others who are skilled, who are prepared to live out in the bush and learn the languages. So you marry the Peace Corps, AID and PVOs such as Africare. Then you really begin to take advantage of all the resources.

Q. Have you had much difficulty trying to find the right kind of technical personnel for your project?
A. The crux of this business is qualified people. While resources are important and we need money to buy the equipment, the bottom line is that you need good people who are sensitive, who have technical skills and who can stay the course. And we're talking about staying the course in places like the Sahel, where the per capita income is less than $100 a year. It's tough and only the strong can survive in places like that. We're looking for technically qualified people—people who would be technically qualified not in Washington, DC, but in Mauritania. The key issue is that the technicians are on a different level of accomplishment in their areas. When they get into rural areas, they are completely out of their league. A lot of people are overtrained. When we look for sanitation engineers, we're not looking for someone to design the sanitation system in Washington, DC. We're talking about someone who can take water out of a river and set up the right kind of system. We need people with the right kind of know-how. That's tough. We are now in the process of thinking about having each applicant interviewed by a doctor to see if they have enough of that internal stuff to keep on going. We want people to talk to people about how much stress they can take overseas. That's important. People just don't realize how the success of foreign assistance is tied up with people. I think we need to create an Institute of Development, where development officers would be trained in the same way that foreign service officers are trained.

Q. Mr. Lucas, what about you personally? What's in this for you?
A. I guess it's the excitement and the frustration associated with this work when you go out to Africa and you see the enormous number of people in rural areas struggling against the sun, struggling against odds, struggling in some cases against political instability. They work with very little. Yet they show such great appreciation. You see the great smile, the great enthusiasm and hope when you provide a little help. That's why you're in this business. And when you see all these beautiful people, all that criticism about politicians collapses. You know when we put up a rural dispensary in Mali for $15,000 we revolutionized the whole health care system for that village. People out there are counting on our help and when you look at the enormous resources of that continent—it staggers the imagination. When I'm talking about resources, I'm not talking about mineral resources, which are vast, but about human resources. You put a book in an African kid's hand and give him some education and you'll turn out a nuclear scientist. The African continent is not being properly exploited. You look at the surface water in Zaire, there is enough hydroelectric power in Zaire to light up all of West Africa. The potential is there.

Q. What about mobilizing black Americans to get behind your effort?
A. We represent the major instrument by which black Americans participate in development in Africa. In the past, in terms of black institutions, black contributions came from the church communities. We've been able to involve black fraternities, black professional groups, social groups. The black church has been a tremendous source of money for us. In 1975, during the Sahel, in the Washington, DC metropolitan community alone, we raised a quarter of a million dollars. A lot of that money came from welfare mothers. People came from as far away as Southeast (DC) and brought money to us in shoe boxes. This is because people in the inner city and the ghetto can empathize more with the people in Somalia and the Sahel than with anyone else. They know what it's like to be without the basic things in life. The moral fiber on the continent and in the ghetto is so much stronger than you find in most other areas. Black Americans are beginning to understand that the struggle in Africa is a struggle to help people gain a decent life and safe water. Most Africans have never walked on a paved street or had safe water or have seen a physician. Our relationship to the continent is far greater than it was 20 or even 10 years ago.

Q. Does Africare provide scholarship or educational programs?
A. We don't have a scholarship program, but this year we are starting a program with the Washington area inner city high school and elementary school children. Students will be writing essays on Africa. The winning students will go to Africa for two to three weeks and they will meet with presidents, visit our Africare programs and staff. □

Conducting this interview for Agenda were Raisa Scriabine and Angela Wright, who is a press officer in AID's Office of Public Affairs.

WHAT THE MEDIA SAY...

All around the world, birth-rates have gone down. Those nightmare scenarios of ever more non-stop billions of starving people packed like sardines will not come to pass. What's seen as bad news may not be. The "population explosion" was regarded as "bad news" because the fellow with the calculator said that if you split a pie among more people, each person has less. That's an argument that may never be settled. A famous demographer has noted that every baby comes equipped not only with a mouth but also with hands. People not only consume but also produce. That makes the pie grow. Isn't it odd that just about every nation in the world raised its standard of living while the "population explosion" was going on? What we see, then, is a pattern that is observable elsewhere in our society: We trumpet and politicize bad trends that may not be bad and may not be trends.

—Ben Wattenberg in the Washington Post

In his zeal to dispel the population explosion myth, Wattenberg fails to pause and ask himself what it was that brought about these fertility level declines. People indeed do have some control over their own destinies; but without knowledge of family planning, without access to contraceptives and the availability of contraceptives this control is severely limited. Birth rates have declined globally mainly because the national leadership in many of the most overpopulated countries began to comprehend the consequences of too many people and started to do something about it. The world population crisis has been described as a "silent explosion," and Wattenberg's misguided appraisal is a testimony to the subtleness of this explosion.

—Werner Fornos in the Washington Post

The United States spends millions of dollars each year promoting breast-feeding as the best way to feed infants. We support breast-feeding; what we cannot support is the code. The United States will continue to promote breast-feeding, but we cannot support a detailed and inflexible code, global in scope and rigid in structure, that our laws and our traditions would never permit us to implement at home. To begin changing our positions whenever they are unpopular in the United Nations is a policy with staggering implications, and one this Administration rejects completely.

—Assistant Secretary of State Elliott Abrams in the Washington Post

The most important thing is that on a leading international public health issue health considerations have been set aside, and the American position has been worked out essentially on political and ideological grounds.

—Washington Post

Do more jobs and more food for poor Asians mean less for us? No, just the reverse: The extra income earned can and does create demand for new products from the industrial countries; the Third World now buys more American exports than Europe. Nor do bigger populations have to mean more poverty.

—Richard Critchfield Christian Science Monitor

The decision by the State Department to suspend any further economic aid to Nicaragua is a bad sign. It means that country hasn't done enough in the past couple of months to slow the traffic in Cuban and Soviet weapons that have been entering El Salvador from Nicaragua.

It is difficult to know what the next step of the Reagan Administration might be. Some difficult decisions lie ahead; the United States cannot permit Central America to become a Communist bastion.

—Tucson Daily Citizen

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