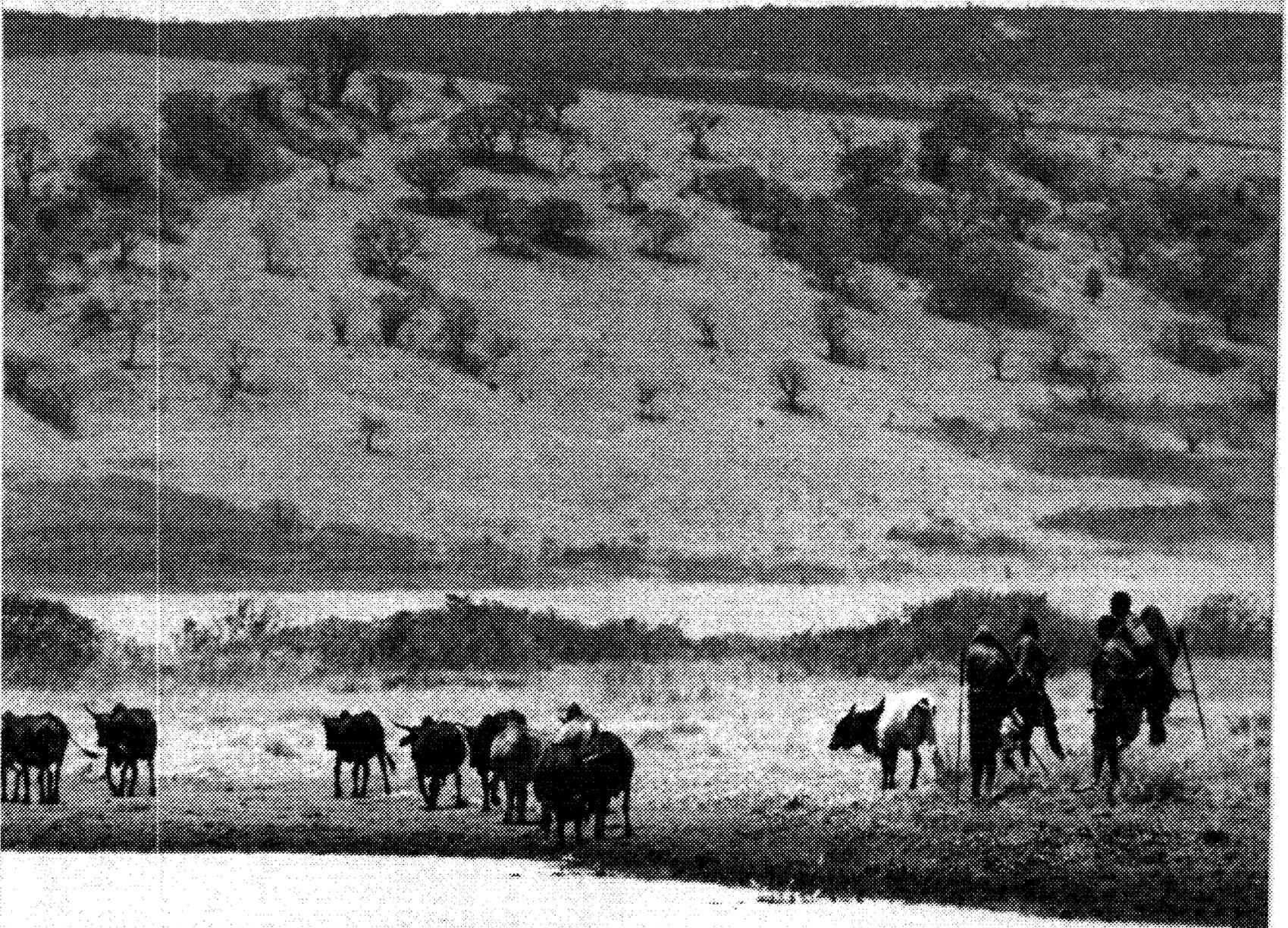


# War on Hunger

*A Report from The Agency for International Development*



AUGUST 1977

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A Report from The Agency for International Development

John J. Gilligan, AID Administrator  
James W. McCulla, Director, Office of Public Affairs

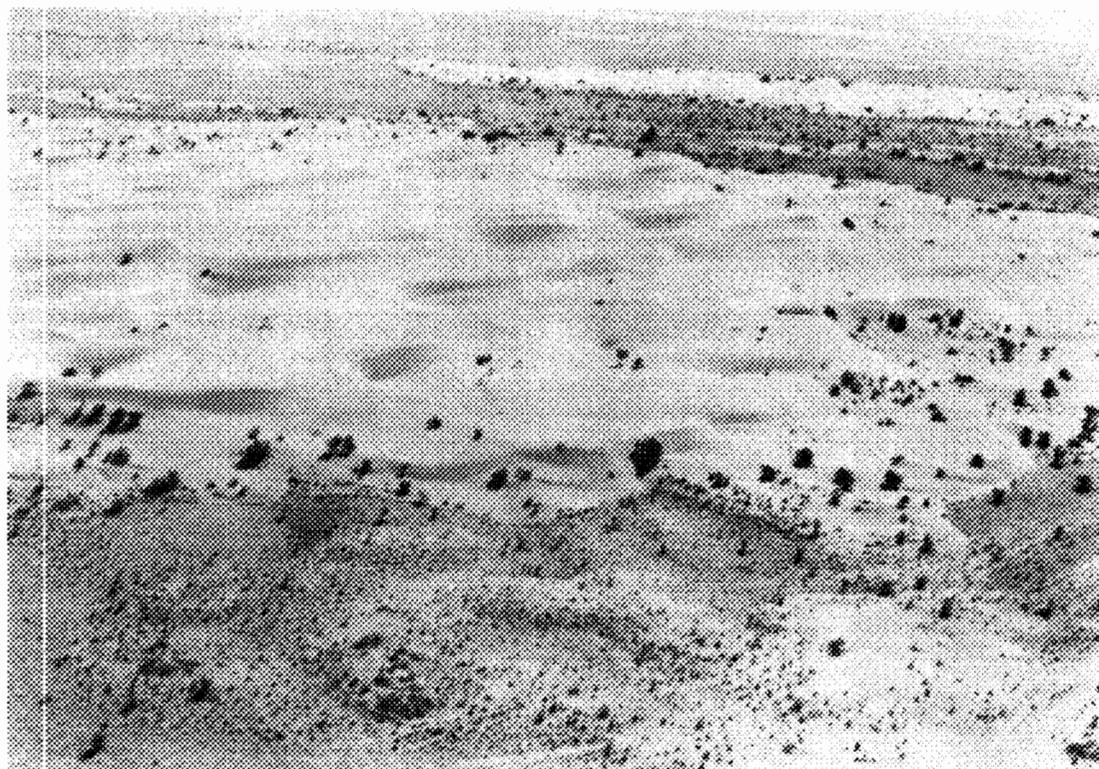


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COVER: Cattle graze near a water hole as the shifting sands of the desert slowly overtake what little vegetation remains in this arid region of the Sahel.

Publications Division  
Office of Public Affairs  
Room 4886, State Department Building  
Washington, D.C. 20523. (202) 632-9141  
Edward R. Caplan, Division Chief  
Bob Gregory, Editor

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This aerial photograph illustrates desertification—the spread of the desert in arid lands.

# The Spreading Desert



By Erik Eckholm and Lester R. Brown

Long ago history was made in the deserts. The earliest civilizations and two of the world's major religions were born there. Now the deserts themselves are making news. In the 1970's world attention is being drawn to arid lands—to some because of the exceptional riches beneath their sands, and to some because ecological deterioration has culminated in human disaster.

Although more than a third of the earth's land is arid or semi-arid, less than half this area is so naturally dry and barren that it cannot support human life. Year after year, however, additional land is converted to waste by humans, who are in many cases forced to compromise their futures by circumstances beyond their control. As a result of the unsound use of land, deserts are creeping outward in Africa, Asia, and Latin America. Worse, the productive capacity of vast dry regions in both rich and poor countries is falling.

About 630 million people—14 percent of the world's population—live on arid or semi-arid lands. Some 78 million of these people, according to United Nations estimates, live on lands already almost useless because

of such factors as erosion, dune formation, vegetation change, and salt encrustation. Those whose livelihoods are not grounded in agriculture may be able to avoid personal disaster amid ecological decline, but perhaps 50 million of these nearly 80 million people face the gradual loss of their livelihoods as their fields and pastures turn into wastelands. They do daily battle with undernutrition, disease, and, when the rains fall, sometimes even starvation. In growing numbers these dis-

#### Editor's Note:

This article is Part One of a Worldwatch Paper, "Spreading Deserts—The Hand of Man," prepared by the Worldwatch Institute, 1776 Massachusetts Ave., N.W., Washington, D.C. *War on Hunger* will present the complete paper in two parts. Part Two will appear in the September issue.

In late August and early September, the United Nations Conference on Desertification will be held in Nairobi, Kenya. *War on Hunger* will follow up this two part series with a report on this U.N. conference. "Spreading Deserts—The Hand of Man" will serve as a background document for the U.N. conference.

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*Mr. Eckholm is a Senior Researcher at Worldwatch Institute; Mr. Brown is President of Worldwatch Institute.*

possessed are flocking to overcrowded cities to compete with the rest of the landless for food and jobs.

The worsening plight of tens of millions in the arid zones had long gone unnoticed by most of the outside world. But in 1972, as word of a great drought and famine south of the Sahara Desert spread, little-known countries like Chad and Upper Volta suddenly appeared in front-page newspaper stories. The hollow faces and match-stick limbs of starving humans haunted television screens around the world. While a belated international relief effort eventually eliminated most overt starvation in the afflicted areas, hundreds of thousands of refugees, mostly proud nomads never before so humbled, poured into relief camps and West Africa's cities. And still there were deaths—perhaps a hundred thousand.

A term unfamiliar to most, "the Sahel," soon became common journalistic coin. Actually a geographic description derived from the Arabic word for "shore" and used to denote the narrow band bordering the Sahara, the term "Sahel" has often been used to refer to the six West African countries that faced drought from 1968 through 1973: Mauritania, Senegal, Mali, Upper Volta, Niger, and Chad. In fact, the drought affected not just the Sahelian zone, but also the broader, moister Sudanian zone to its south, which includes most of these six African countries and parts of many others. Even as the West African tragedy was unfolding, droughts and famines struck countries to the east, including Sudan, Somalia, Ethiopia, Kenya, and Tanzania. Although the Sahelian tragedy received more publicity, famine in Ethiopia during the early seventies probably took more lives than the six Sahelian countries together lost.

As awareness of the misery and dislocation of millions of Africans grew, so did the realization that something more than an hiatus in the Saharan fringe's typically low rainfall was occurring. Historians of Africa's desert lands quickly discovered that the ecological calamity triggered by the drought had been stewing for decades. Its roots lay in social and economic patterns incompatible with the region's environmental limitations, and were not touched by the rains that finally returned to most of the Sahel in 1974.

Disasters in the desert are nothing new: droughts and crop failures have always plagued arid lands, as Joseph recognized in ancient Egypt when he advised the Pharaoh to set aside grain reserves. But both the scale of suffering when the rains fail and the scale of destructive human pressures on delicate arid-zone ecosystems are reaching unprecedented proportions in the Sahel and in many other desert regions. As the number of people who rely on the pastures and croplands of the arid zones climbs, once-sustainable social patterns and production techniques begin to undermine the biological systems on which life depends.

Traditional means of coping with drought and of living peacefully with the environment have been rendered

inadequate by the modern political and social order, but "development" has not offered desert-dwellers alternative ways to live on the land. Social systems and ecosystems are thus on a collision course; and the question is not whether social and economic patterns in many arid zones will change, but how. Either humans will initiate the economic and political reforms and the technological and demographic changes needed to enhance and protect the land's productivity, or events—sure to be labeled "natural catastrophes" when they occur—will enforce social changes as production falls to an ever smaller fraction of its potential.

### Desertification: A Global Problem

Long used by some French analysts to describe the desert encroachment and land deterioration they saw in Africa, the term "desertification" has only recently entered the common parlance of the international development community. Once little-known outside scientific circles, the problems encompassed by this concept are, in late 1977, the subject of a United Nations Conference on Desertification to which governments from all over the world will send representatives.

While "desertification" has become something of a catch-all word, all the problems usually covered by this term involve ecological changes that sap land of its ability to sustain agriculture and human habitation. To many, desertification evokes an image of desert sands relentlessly engulfing green fields and pastures. While desert encroachment of such a dramatic sort is a genuine threat in some areas, in most cases one might more accurately think in terms of the desert being *pulled* outward by human actions. Where desert edges are moving outward, moreover, the process seldom involves the steady influx of a tide of sands along a uniform front: rather, climatic fluctuations and land-use patterns interact to extend desert-like conditions irregularly over susceptible land. Spots of extreme degradation are especially apt to grow around water holes when the nearby pastures are heavily grazed and trampled and around towns when people denude adjacent lands in their search for firewood.

Dangerous as desert encroachment may be, a far weightier threat to human welfare is the degradation of patches of rangeland and cropland throughout the world's arid and semi-arid zones. Such deterioration occurs wherever land is abused regardless of the proximity of true, climatically-created deserts. Where land abuse is severe and prolonged, and especially where extended drought intensifies its effects, grasslands and fields can be reduced to stony, eroded wastelands—or even to heaps of drifting sand. More commonly, the quality of rangeland vegetation declines as the more palatable and productive plants are nudged out by less desirable species. On croplands, yields may gradually fall as soil nutrients are dissipated and the topsoil is eroded by wind and water.

Where and at what pace is desertification unfolding? Documentation is poor even on current soil conditions in many affected areas, let alone on changes in conditions over time. Still, if scientists have not been able to draw precise conclusions, they have used available facts to make valuable estimates of the extent of desertification in various regions. A particularly bold, if imprecise, effort has been made by an Egyptian ecologist, Mohammed Kassas. Detailed surveys of climatic data, he observes in a report to the United Nations Environment Program (UNEP), indicate that 36.3 percent of the earth's surface is extremely arid, arid, or semi-arid—categories he combines under the general heading of deserts. Yet a world survey of land conditions based on soil and vegetation data indicates that 43 percent of the earth's surface falls within these categories. The difference of 6.7 percent, Kassas suggests, "is accounted for by the estimated extent of man-made deserts." A collective area larger than Brazil with rainfall above the level received in lands classified as semi-arid has been degraded to near-desert through deforestation, overgrazing, burning, and injudicious farming practices. And, it should be stressed, this estimate does not take into account the far greater degradation *within* the zones that are arid or semi-arid in the climatic sense.

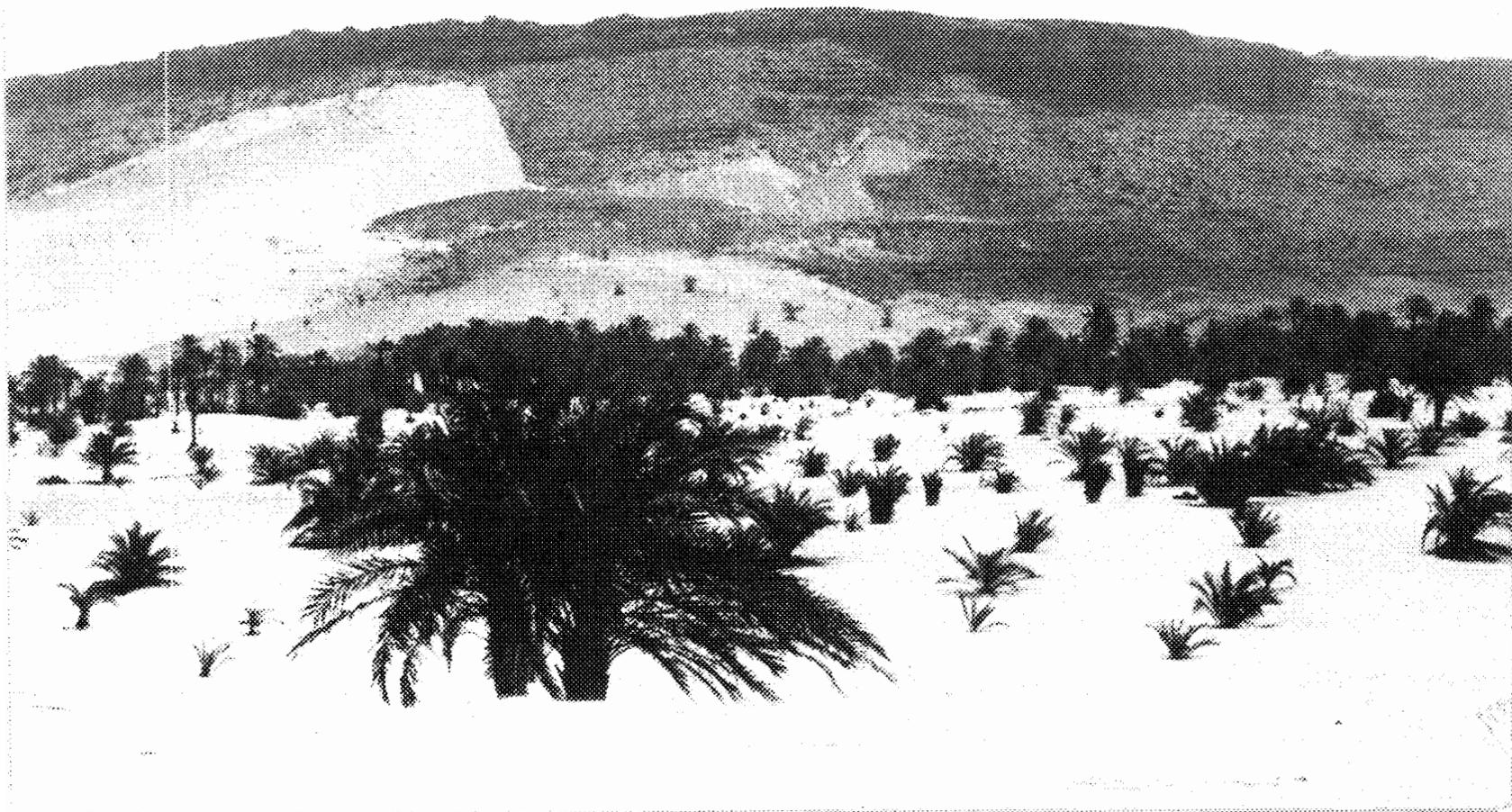
*The desert continues to encroach in the Sahel. These trees in Mauritania are being engulfed by the shifting sands. As*

As wide of the mark as an estimate like Kassas' may be, it remains a meaningful reflection of the problem's scale. Regional estimates of the spread of deserts and of the degradation of semi-arid lands support the belief that desertification, already a major world problem, is growing in magnitude. It is a malignancy undermining the food-producing capacity of the world's drylands.

The southward encroachment of the Sahara Desert is legend, but it is also fact. If the wilder versions of some 19th and early 20th century commentators who believed the desert to be engulfing lands at a terrifying rate have proven overdrawn, there is little doubt that the desert's edge is gradually shifting southward. According to researchers for the U.S. Agency for International Development, an estimated 650,000 square kilometers of land once suitable for agriculture or intensive grazing have been forfeited to the Sahara over the past fifty years along its southern fringe.

The spread of the Sahara has probably been measured most precisely in Sudan. There, as elsewhere, vegetational zones are shifting southward as a result of overgrazing, woodcutting, and accelerated soil erosion. As a number of analysts have described the process, desert creeps into steppe, and while steppe loses ground to the desert it creeps into the neighboring savanna which, in turn, creeps into the forest.

*the desert engulfs more and more vegetation, life in arid regions becomes more difficult.*





Goats are known as the "scourge of the desert" because of their voracious appetites. A small herd of goats can

destroy large areas of vegetation in a short time. Areas used for goat grazing are soon barren.

When an aerial survey of Sudan's desert margins was completed in 1975, the photographs were compared with maps that had been prepared in 1958. Examining the line at which scrub vegetation tapers off into barren desert, H. F. Lamprey concluded that "the desert boundary has shifted south by an average of about 90-100 kilometers in the last 17 years." Observations of tree and scrub cover in Sudan suggest a similar pace of degradation. Dense concentrations of the Acacia tree, ubiquitous in many arid zones and useful for firewood, forage, and (in the case of certain species) gum-arabic production, were common around the Sudanian capital of Khartoum as recently as 1955; by 1972, the nearest dense Acacia stands stood ninety kilometers south of the city.

An examination of agricultural trends in the central Sudanian province of Kordofan suggests some of the forces underlying this costly biological march. Livestock numbers in the province have multiplied nearly sixfold since 1957, putting unbearable pressures on grasses and shrubbery. As the human population grows without a simultaneous transformation of agricultural technologies, the traditional cropping cycle—sound and

sustainable when followed properly—is breaking down, resulting in both crop-yield reductions and the outright loss of arable lands.

In the past, patches of land covered with Acacia scrub were burned clear and then planted with millet, sorghum, maize, sesame, and other crops for from four to ten years. The depleted land was then left idle until the Acacia scrub reinvaded it; after eight years or so, the trees could be tapped for gum-arabic, a valuable cash crop, for six to ten years. Finally, as the trees began to die, they were burned, and the cycle began anew. Jon Tinker describes the recent evolution of this system:

"This ecologically-balanced cycle of gum gardens, fire, grain crops, and fallow is now breaking down, the 1968-73 drought having in many areas given it the *coup de grace*. Under pressure of a growing population, the cultivation period is extended by several years and the soil becomes too impoverish to recover. Over-grazing in the fallow period prevents the establishment of seedlings. Gum trees are lopped for firewood. More and more widely, *Acacia senegal* no longer returns after the fallow, but is replaced by non-gum-producing scrub.

And without the gum to harvest for cash, the farmers must repeatedly replant their subsistence crops until the land becomes useless sand."

Sudan, it is frequently observed, has the theoretical potential to become the breadbasket of the Arab world, given the presence of still unused lands and unexploited rights to Nile River waters. But if the deterioration of Sudan's natural resources is not soon halted, at least some of this potential will dry up.

While land degradation on the southern side of the Sahara has made news in the seventies, land along the northern margins has met with much the same, albeit unpublicized, fate. The population of arid North Africa has multiplied sixfold since 1900, and the destruction of vegetation in Morocco, Algeria, Tunisia, and Libya has accelerated apace—particularly since about 1930, when the region's population began to grow rapidly. Overgrazing, the extension of grain farming onto lands that cannot sustain it, and firewood gathering have all overtaxed the agricultural environment. The result, calculates range specialist H. N. LeHouerou, is the loss of more than a hundred thousand hectares of range and cropland to desert each year.

As the Atlas Mountains to the north erode and as the desert to the south spreads, food production has stagnated in many areas of North Africa. This one-time granary of the Roman Empire is now a major food-importing region. The true extent of the rural deterioration that prevails in much of North Africa is masked by soaring proceeds from petroleum and phosphate exports and by the remitted earnings of the millions who have migrated to Europe for work.

Desertification is by no means limited to the Saharan fringes. It is a major problem in parts of southern Africa, particularly in Botswana. Vast semi-arid grasslands in Kenya, Tanzania, Ethiopia, and elsewhere have been seriously damaged by overgrazing. But its hold is particularly long-lived and advanced in the Middle East and Western Asia. The site of many early human civilizations and the recipient throughout history of military invasions from all sides, the arid landscape of this region has suffered many millenia of overgrazing, deforestation, and imprudent cropping. Expanses have been irreversibly transformed by humans into desert and some areas support fewer people today than they did thousands of years ago. Although many governments in the region have tried to thwart desertification, land damage continues today.

The rangelands of northern Iraq, forage specialists figure, can safely sustain only 250,000 sheep without degradation—a far cry from the million or so that are currently eating away this resource base. Likewise, Syria's ranges currently feed triple the number of grazing animals they can safely support. In the initial stage of such degradation, inferior plant species replace more useful varieties. Then, sheep pastures become suitable only for the hardier goats and camels.

Finally, in the words of Ibrahim Nahal, "in the ad-

vanced stage of deterioration the plant cover disappears as is apparent in many of the steppe zones in Syria, Jordan, Iraq, and the United Arab Emirates, where the rangelands have turned into semi-deserts covered with a layer of gravel or into semi-sand deserts."

Rain-fed farmlands in much of the Middle East also show signs of ecological decline. Cultivation has been pushed onto lands with extremely low and unpredictable rainfall; as a result, soil erosion has accelerated and herders have been robbed of sorely needed grazing areas.

In the Middle East, as in North Africa, the introduction of mechanical plowing has sometimes boosted the pace of soil degradation by increasing the land's susceptibility to erosion. One major result of improper cultivation in the Middle East has been, according to Nahal, "a distinct reduction in the per-hectare cereal yield in the rain-fed agricultural zone." National net production increases resulting from expansions in the irrigated area and in the total cropped area have helped to hide this decline in productivity.

Apart from intensively irrigated regions like the Nile and Indus Valleys, northwestern India is the world's most densely populated arid zone—a distinction that may turn out to be an epitaph. On average, more than 61 people now occupy each square kilometer of India's arid lands, which include the sandy wastes of the Thar Desert of western Rajasthan; a



During the drought in the Sahel, goats often climbed trees to feed on scarce foliage. Some died seeking food in trees.

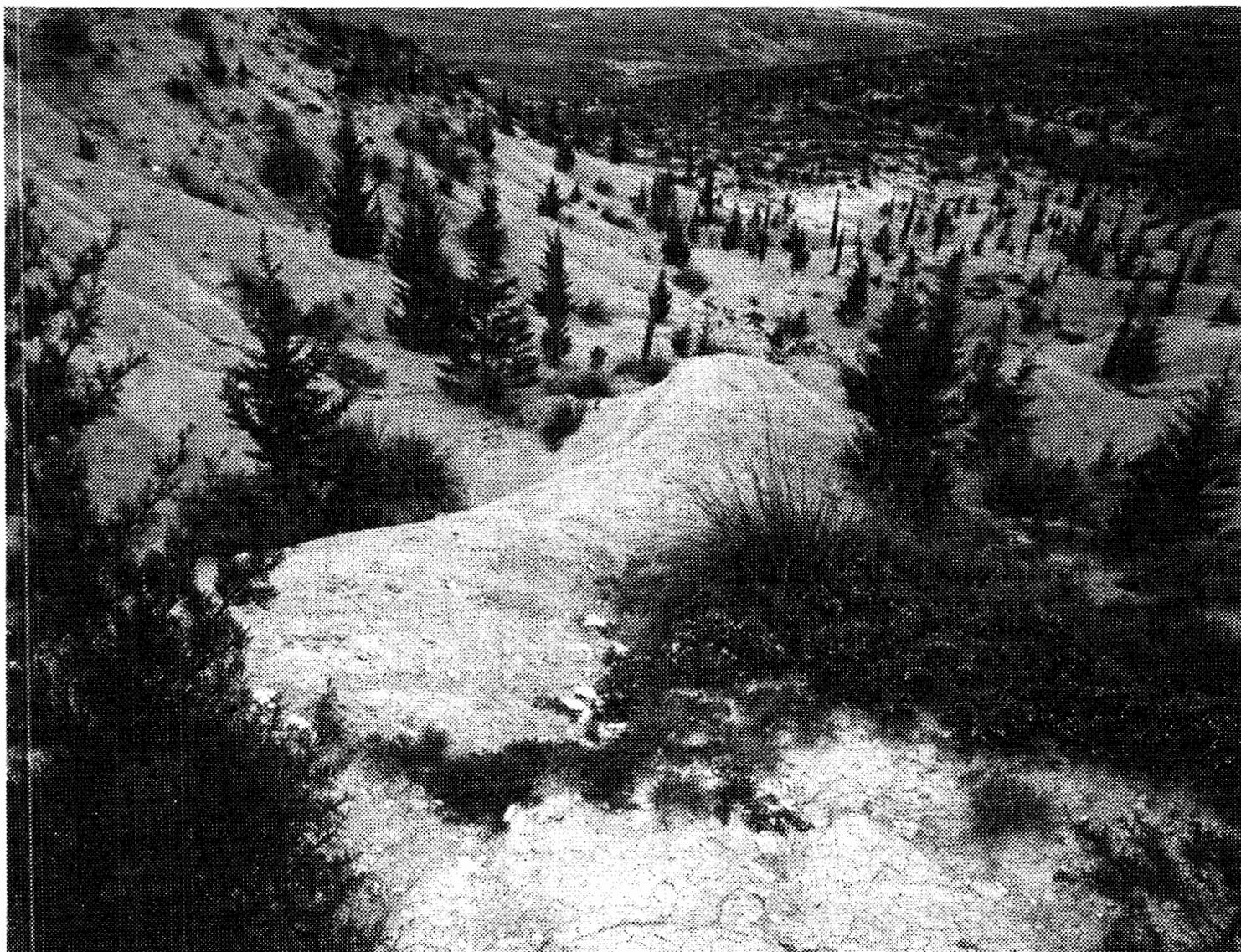
larger inhabited but desolate area surrounding it that is often loosely called the Rajasthan Desert; and other dry areas farther south and east. This density is but a small fraction of that supported in nearby irrigated valleys, but it is, as scientists at India's Central Arid Zone Research Institute recently observed, "quite high in view of limited resources."

The practical consequence of this pressure has been the extension of cropping to sub-marginal lands, which has helped make northwest India perhaps the world's dustiest area. Meanwhile, as the amount of land available for grazing shrinks, the number of grazing animals swells—a sure-fire formula for overgrazing, wind erosion, and desertification. The area available exclusively for grazing in western Rajasthan dropped from 13 million to 11 million hectares between 1951 and 1961, while the population of goats, sheep, and cattle jumped from 9.4 million to 14.4 million. The livestock population has since continued to grow while the cropped area in western Rajasthan expanded further during the

1960's from 26 percent to 38 percent of the total area. The net effect has been to squeeze the area even more.

Recent investigations by Indian scientists throw into question the widely held belief that the Thar Desert is rapidly marching toward New Delhi. Far from justifying complacency, however, these studies reveal the worsening plight of the millions who live in India's drier regions. In and around the desert portions of Rajasthan, yields of most major crops declined between 1954 and 1970. And in the Luni Block, a typical zone, "most pastures have been reduced to between 10 and 15 percent of their original productivity. The present forage deficiency of more than 50 percent is made good at the expense of the standing vegetation, and hence at the cost of future production." In 1958, about one-fourth of Luni Block was covered with a sheet of sand—some of it building into dunes. By 1976, 33 percent of the zone was so covered.

Subjected to decades of accelerated deforestation, farming without adequate renewing of the soil, and



*Reforestation projects help delay the spread of the desert. This arid terrain shows part of a reforestation area. Terrac-*

*ing works can be seen in the upper right-hand corner. Such projects aid the effort to control desertification.*

overgrazing, much of west and central India now resembles a lunar landscape. Because of their low productivity, India's arid zones, which comprise a fifth of the country's total area, chronically drain the central government's meager emergency relief funds and food stocks.

No American countries are entirely arid and semi-arid. Still, desertification is taking place in many of the Western Hemisphere's drier regions. In the Argentinian states of La Rioja, San Luis, and La Pampa, desert-like environments are being created. Large areas of Mexico and the Southwestern United States have been degraded by overgrazing and woodcutting in the few hundred years since the Spanish invasion. The semi-arid tip of Brazil's Northeast is being desertified and, according to Brazilian ecologist J. Vasconcelos Sobrinho, desert-like zones are expanding in more humid interior portions of the Northeast as a result of the massive destruction of forests by ranching corporations and land-hungry farmers.

In Chile's arid Coquimbo Region—which divides the lifeless Atacama Desert to the north and the productive irrigated valleys of central Chile—cactuses have replaced shrubs on some overgrazed lands, and on others native perennial plants have given way to less productive annuals and foreign species. As these pastures decline in quality, sheep replace cattle and then goats replace sheep. At the same time, the cultivation of hillsides has led to massive soil erosion and, on the steeper slopes, a total loss of topsoil. The region's inequitable land-tenure pattern promotes ecologically unsound land use. The large and sparsely populated estates of the wealthy have room for proper grazing rotations, while the inadequate communal and personal holdings of the poor majority are overcrowded and increasingly degraded. Consequently, a high share of the region's adults are forced to migrate in search of income, and at least a quarter of the small children of Coquimbo are undernourished.

Desertification is by no means confined to less developed countries. Ill-managed rangelands in Australia have lost productive plant species and topsoil. The dissolution of the American Great Plains into the Dust Bowl of the 1930s showed all too graphically the perils of plowing up lands best left in grass—just as the subsequent recovery and prosperity of much of that same area showed the benefits of better land husbandry.

Recent analyses of the conditions of many U. S. grazing lands leave little room for satisfaction, however. Reporting in 1975 on the 163 million acres of range it manages, the Bureau of Land Management (BLM) found half the area to be in only "fair" condition—meaning that the more valuable forage species had been depleted and replaced by less palatable plants or by bare ground. Another 28 percent was in "poor" condition: stripped of much of its topsoil and vegetative cover, it produced only a fraction of its forage potential. Five percent of all BLM-controlled land



*In the Sahel, trees planted to help in desertification control must be watered by hand.*

was deemed in "bad" condition: with most of its topsoil gone, it could support only a sporadic array of low-value plants. The 50 million acres of land in "poor" or "bad" condition, an area equal to that of the state of Utah, were damaged primarily by overgrazing.

One of the most dramatic and, in human terms, costliest examples of desertification in the United States is that of the huge Navajo Indian Reservation in northern Arizona and New Mexico. Encouraged by the U.S. government to become sheep farmers after their 19th century subjugation, the Navajós proved to be adept shepherds. But, as the flocks multiplied in the absence of proper range-management techniques, the land—and ultimately the people living off it—paid an enormous price. Locations described by mid-19th century travelers as lush meadows are today vistas composed of scattered sod remnants amid shifting sands and deep gulleys. Only a small fraction of the potential economic benefit is being harvested from these dusty, sagebrush-dotted lands that were once largely carpeted with grass.

In one zone that range specialists recently calculated could safely support 16,000 sheep at most, 11,500 Navajo people with 140,000 sheep were trying to wrest an existence. Before a new stock-reduction program took effect in the mid 1970s, their lot was growing increasingly difficult. In essence, individual families have been caught in an economic bind in which short-term self-interest dictates behavior that undermines the tribal patrimony. Yet, if herd reductions, careful grazing management, and reseedling can restore this zone to peak conditions, its carrying capacity will eventually rise above the current level by a factor of ten.

While desertification clearly plagues rich as well as poor countries, the same processes of deterioration can have quite different effects on human life in different social contexts. Wealthier countries with diversified economies and public welfare programs can generally absorb localized declines in productivity without human catastrophe. In the United States, for example, many of those whose cattle are degrading public rangelands are well-off ranchers or investors, and even those Americans who can ill afford financial losses from desertification can sometimes migrate to better prospects or, if nothing else, collect welfare funds that, at the least, keep starvation at bay.

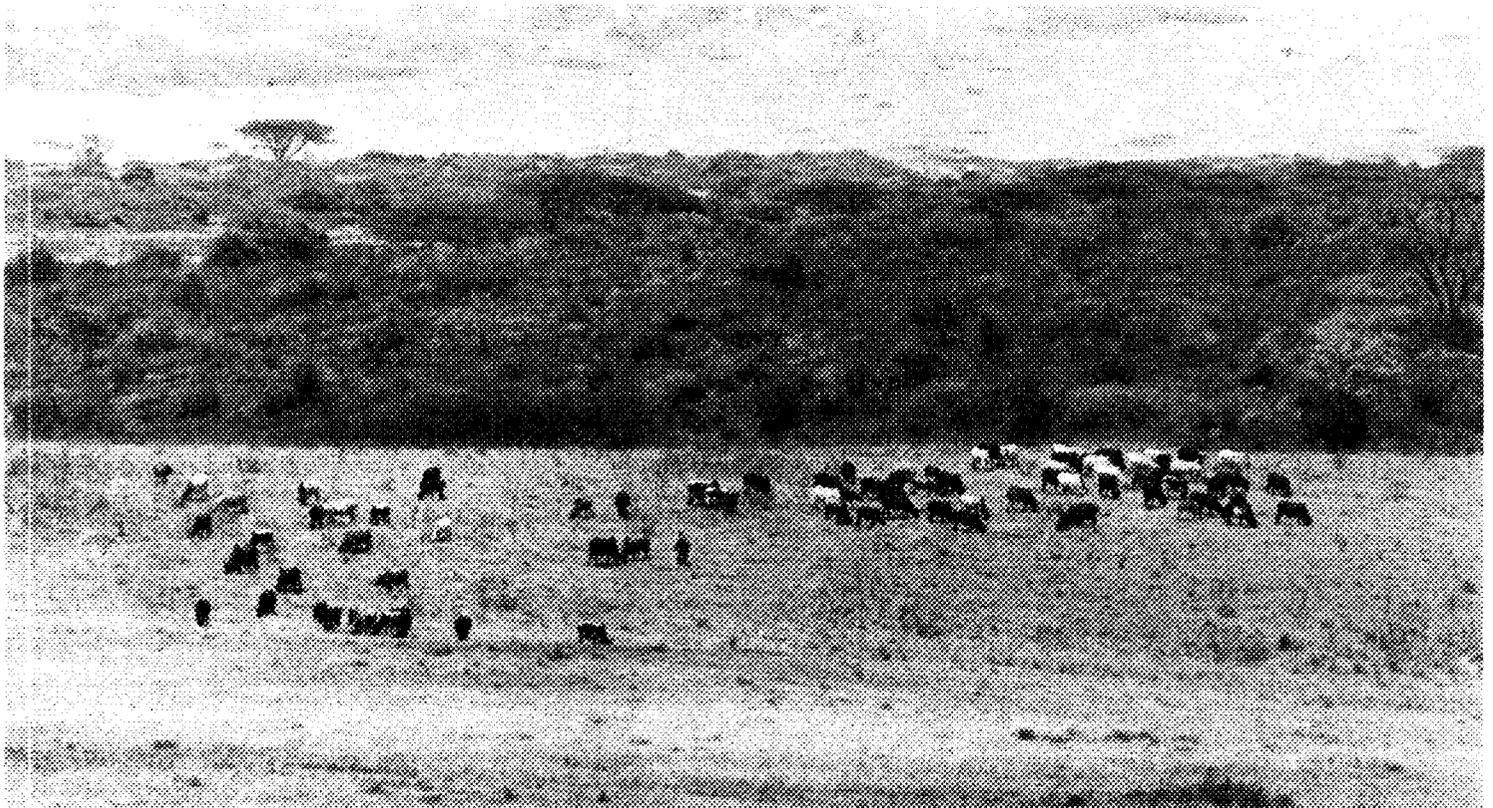
In contrast, tens of millions of Africans, Asians, and Latin Americans have nowhere to turn for aid as the basis of their livelihood erodes. Left in the wake of the global development process, they face chronic destitution and, when the rains fail, possible famine.

Water gives life to the desert, and a long-term shift in rainfall patterns can by itself transform the ecological character of a region. When deserts appear to be spreading, questioning whether climatic change might be the real culprit is only natural. Unfortunately, our understanding of climatic change and our knowledge of historical weather trends in most desert regions are too speculative to permit unequivocal conclusions about climate's contribution to desertification today.

### Droughts are Inevitable

Theories on the causes and nature of world climatic change are now almost as numerous as the scientists who study the problem seriously. That major climatic changes have occurred over exceptionally long time periods may not be hard to prove. For example, no climatologists doubt that the Indus River civilization flourished four thousand years ago in a moister climate than Pakistan enjoys today. But determining whether a present-day drought reflects a 20-year dry cycle, a 200-year cycle of rainfall patterns, the beginnings of a new climatic age, or simply a random event is far more difficult. At any rate, to review current theories and knowledge is to sense the urgent need for research efforts on climatic trends and their causes—natural and human. It is also to see, without question, that people and their livestock are helping to downgrade the carrying capacity of arid lands and to create new spots of desert.

Pointing to the unusual weather patterns and fre-



*This herd of cattle grazes in an area where there is meager vegetation. Desert encroachment can be seen in the back-*

*ground. Soon the very area where the cattle now graze will surrender to the ever-moving, shifting sands.*



*In Niger, only a few trees remain in many parts of the desert. The great drought helped speed the desertification of much*

quent droughts of the last decade, some analysts hold that a long-term change in the world's climate is an important cause of desertification. However, according to F. Kenneth Hare of the University of Toronto, who has reviewed available evidence on climate and desertification for the U.N. Conference on Desertification, there is "no firm basis for claiming that the extreme weather events of the 1970's are part of a major climatic variation." Extensive reviews of available rainfall records from North Africa reveal no evidence that rainfall has tapered off over the last 100 years. Nor have Indian scientists studying the Thar Desert found any signs of recently increased aridity on its fringes. Similarly, available evidence indicates that rainfall levels in the Middle East have remained roughly the same for the last 5,000 years.

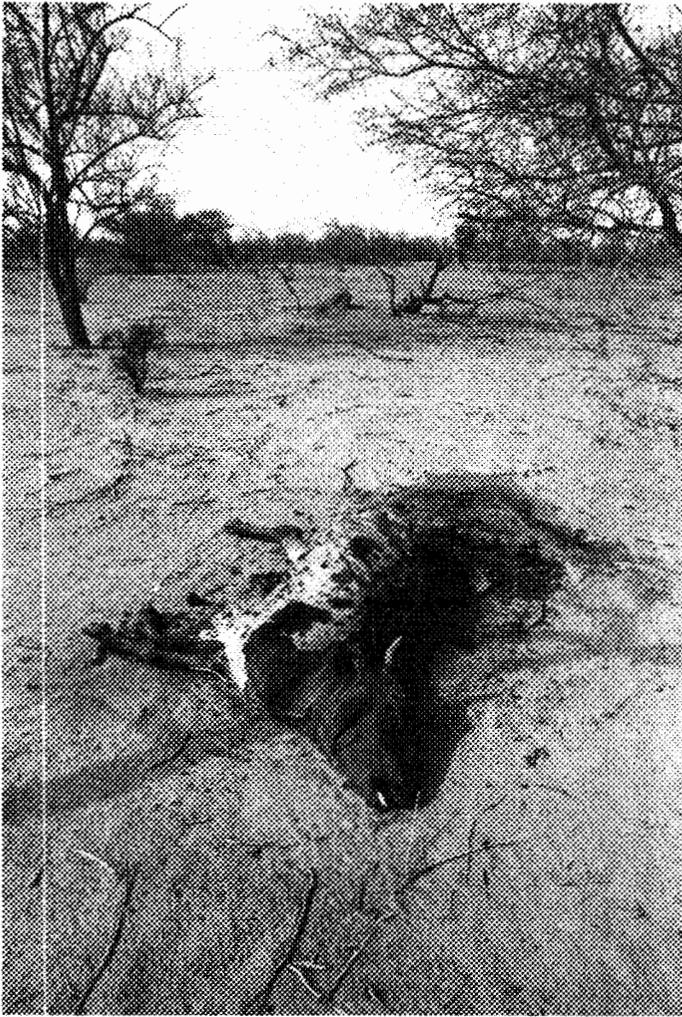
South of the Sahara, as E. G. Davy concluded in a study of the Sahelian drought for the World Meteorological Organization, "no serious analysis of available data is known to show a falling trend of rainfall in the zone over the periods for which records are available." The length of the recent Sahelian drought proves nothing by itself, for droughts have lasted as long in the

*of that area. Without rain, vegetation will not grow; without vegetation, the desert sands shift more quickly.*

past. Indeed, the Sahelian rainfall in the period from 1907 to 1915 was probably just as light as it was during the recent drought, though low rainfall may have affected a smaller area then. Lengthy droughts will likely visit the region again whether a major climatic change is taking place or not.

On the other hand, some climatologists believe that we are entering a new age of greater climatic instability; and, as Reid Bryson, Director, Institute of Environmental Studies, University of Wisconsin, points out, we will not know for sure that we have entered a new climate era until we are in the midst of it. Then, too, climate is not immutable, and significant changes have occurred rapidly in the past. Finally, what in historical light appears as a brief fluctuation in a long-term climatic trend can be catastrophic for farmers and other people dependent upon a particular weather pattern.

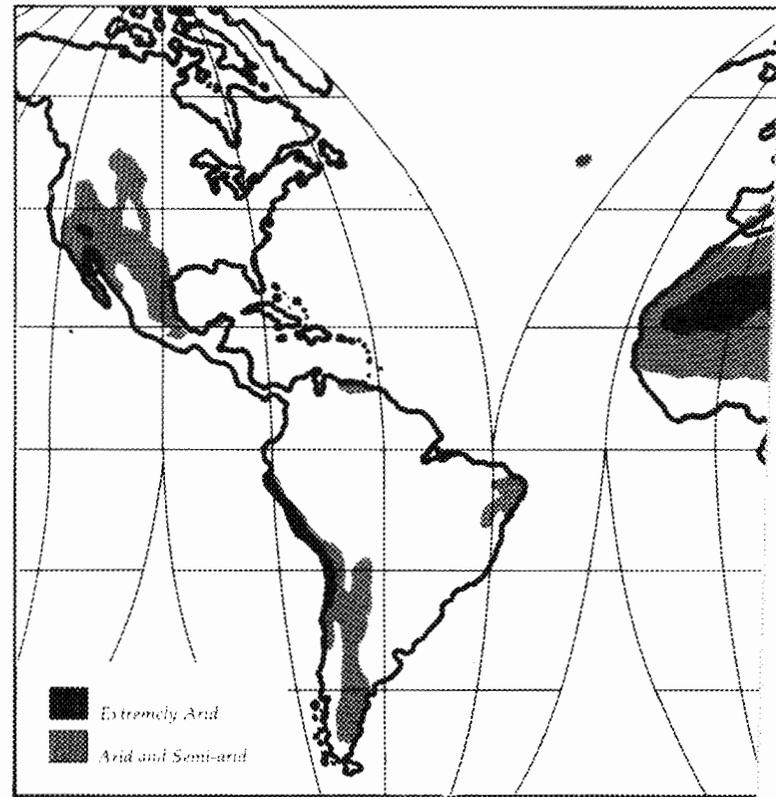
Some analysts believe that the landscape denudation associated with desertification may have a self-reinforcing climatic impact--prolonging or increasing the likelihood of droughts and, hence, of further devegetation. By some theories, the increased reflection of solar radiation from the surface that occurs when land is stripped



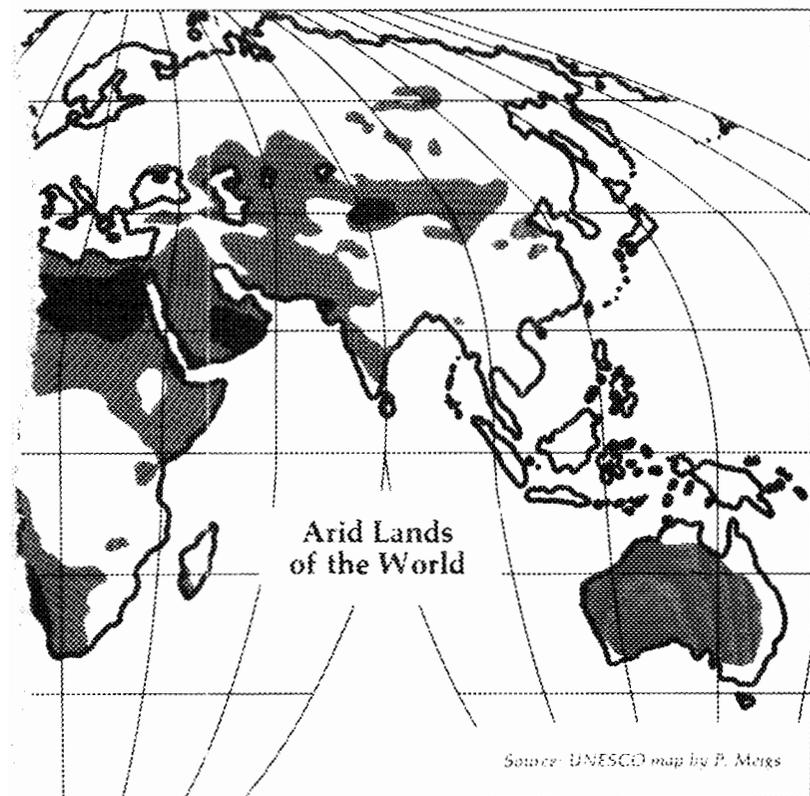
*During droughts, much livestock perishes. When droughts come, death is a constant threat.*

of trees and grasses may reduce the rainfall within a localized region; by others, a rising load of dust above a wind-eroded terrain suppresses potential rainfall. If such localized interactions between denudation and drought do exist, however, they can apparently be overridden by global climatic patterns—otherwise, droughts, once underway, might never end. A few climatologists go one step farther and hypothesize that worldwide desertification and deforestation have already altered surface reflectivity (or, depending on the theory, atmospheric dust levels) enough to affect the global climate.

Probably the most significant effect of devegetation on the local water balance has to do not with climatic change but rather with the land's ability to capture and use what rain does fall. Rain striking barren, trampled, or sparsely vegetated ground is more apt to run off the surface than to soak in: not only are underground water and springs thereby left unregenerated, but soil erosion and the incidence of floods after heavy rainstorms also rise. Depleted of their organic matter and structurally destroyed, soils can lose the ability to retain moisture from one rainy season to the next. Consequently, the natural vegetation may then bow to hardier species, while the loss of soil moisture and increased erosion sap



*A young farmer plows what used to be fertile land. The combination of little rainfall and the spreading desert has*

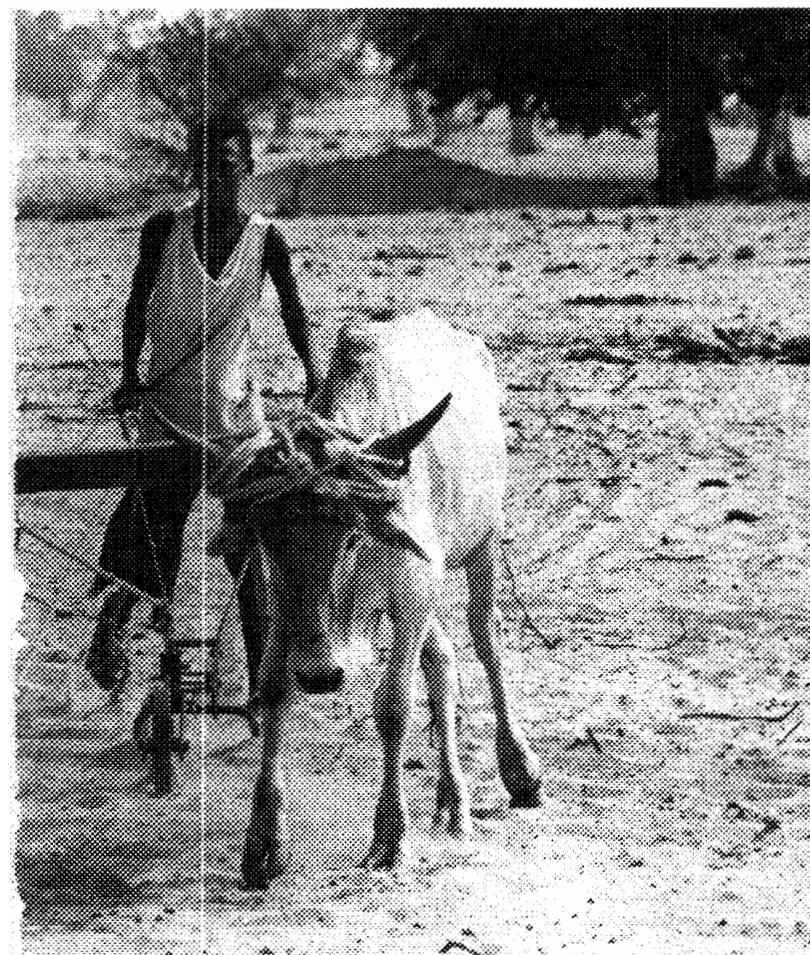


the productivity of croplands. Thus, even when rainfall remains constant over time, land abuse can transform an area's plant life into that normally associated with a drier climate.

Whether or not a major climatic change is occurring, the experience of the world's drier zones makes it clear that droughts are unavoidable in arid environments. Although not precisely predictable, they should never come as a shock. Nor should droughts be perceived as unexpected natural disasters like tornadoes or earthquakes. Instead, they should be anticipated as harsh facts of life. Agriculture and culture in the desert must both be shaped to survive the driest years, not to push the land to its limits in years of adequate rainfall. Any other approach promises death and dislocation every time the rains fail for long.

Not only human suffering, but also the destruction of vegetative cover, the wind erosion of cultivated fields, and the formation of unusable wastelands all peak during droughts. Years or decades of steady rainfall encourage the growth of forage, the multiplication of herds, and the extension of cultivation to lands more safely left in grass; they also breed false confidence about the carrying capacity of the land. Then, when the rains finally fail, overabundant animals eat every available blade of grass on the weather-decimated rangeland until finally many starve to death, especially around wells. Tree-climbing goats eat the last bit of greenery, leaving behind wooden skeletons for the firewood gatherers. Crops fail to take root in the parched ground. The bare, plowed soil yields to the wind, and a dust bowl is created. If the rains remain absent long, sand dunes appear where none existed before. Nomads, farmers, and their surviving herds retreat before denuded lands, setting in process a self-reinforcing negative spiral as more and more refugees overcrowd and overgraze more and more land.

The years immediately following a severe drought can nurture bogus optimism about the land's capacity. By killing off a share of the herds and driving some of the former inhabitants from the region, nature has temporarily restored a shaky equilibrium. Smaller herds make more manageable demands on grazing lands, and returning rains bring grasses and shrubs back to life wherever the soil has not been seriously damaged. Refugees trickle back and, unless some new force intervenes to break the pattern, the same deadly cycle begins again.



turned the ground to sand. His plowing efforts do little to help and what he plants probably will not survive.

***To be continued in the September issue of War on Hunger.***

# After the Drought: A Slow Recovery

By Emmett George

The women are back on the streets selling food in Bamako, the teeming capital of Mali. The reappearance of these roadside stands is probably the best indication that the country is recovering from the great drought that ended "officially" in 1974.

The stands are stocked with fresh vegetables and other food items. Store shelves are no longer bare and there is a visible decrease in the number of beggars on city streets. This revitalization is typical of other Sahelian cities.

Although the 1974 rains officially marked the end of the great drought that hit Senegal, Mauritania, Mali, Niger, Upper Volta, the Gambia, the Cape Verde Islands, and Chad in 1968, there are always "pockets of drought" in the Sahel which spans West Africa from the Atlantic Ocean eastward to the Sudan—a distance of 2,600 miles.

The activity in the cities, however, belies the situation in the rural areas where recovery has been slower. In these areas, effects of the drought remain.

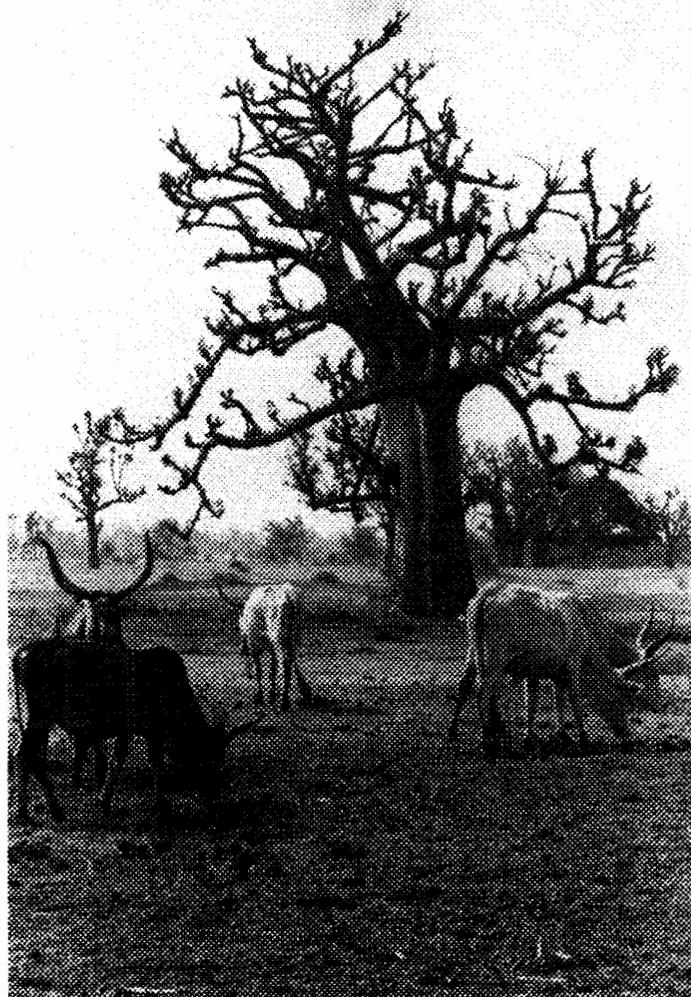
The drought ravished the livestock herds and forced the herdsman to eat their goats and cattle, which they would normally do only for ceremonies or weddings.

Alpha Macki Tall is a sanitation technician in Timbuktu, also in Mali. Tall recalls how the drought sent waves of Tuareg and other nomadic refugees into the legendary city which prior to 1972 had a population of about 8,000. Today the population is almost 15,000, many of them refugees who are uncertain about their ability to survive in the desert. Instead of returning, they have elected to remain in squalid tent villages and subsist on emergency government grain rations. The refugee nomads have severely taxed local government resources.

The drought years were bleak for Timbuktu, Tall said. "There was nothing to eat. The drought affected all of us, particularly the nomads. There were over 7,000 of them in the refugee camps and it was difficult to feed every one.

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*Mr. George is an AID press officer.*



*Cattle graze in an area of Senegal. Brief rains helped bring back some vegetation to arid areas.*

"We were really surprised by the length of the drought. There had always been drought in Mali but not like this. Our goal now is to build up enough grain stocks to endure another drought. We are also trying to bring people out of their nomadic existence and teach them to cultivate food crops. We are trying to teach nomads to raise cattle in a village setting instead of roaming the desert," Tall said.

The drought, the worst to hit West Africa since 1914, resulted in disastrous harvests in 1972 and 1973. This triggered an international relief effort. The rains finally came late in 1974 but not before some 100,000 people had died of starvation and disease. In addition, 50 percent of the livestock population perished in this region of 27 million people.

The United States, through the Agency for International Development, was in the forefront of the relief effort that involved most of the developed nations of the world, the United Nations Food and Agriculture Organization and other international relief agencies.

During the drought the American Congress provided \$110 million in special drought funds and a request is

currently before the Congress for an additional \$200 million for fiscal 1978 and 1979.

To cope with the influx of nomads into Timbuktu, the Government of Mali requested AID assistance for a variety of projects. The most extensive was the dredging of the city's canal system. This in turn allowed for the cultivation of vegetable gardens. Another product of this assistance was the construction of a circular white-brick drinking water reservoir, the city's first pure water reservoir.

Ta.I, a well-respected man, was picked by the government to oversee public health and educational projects administered by AID, including two six-room school buildings, 18 city garbage dumps and 12 latrines.

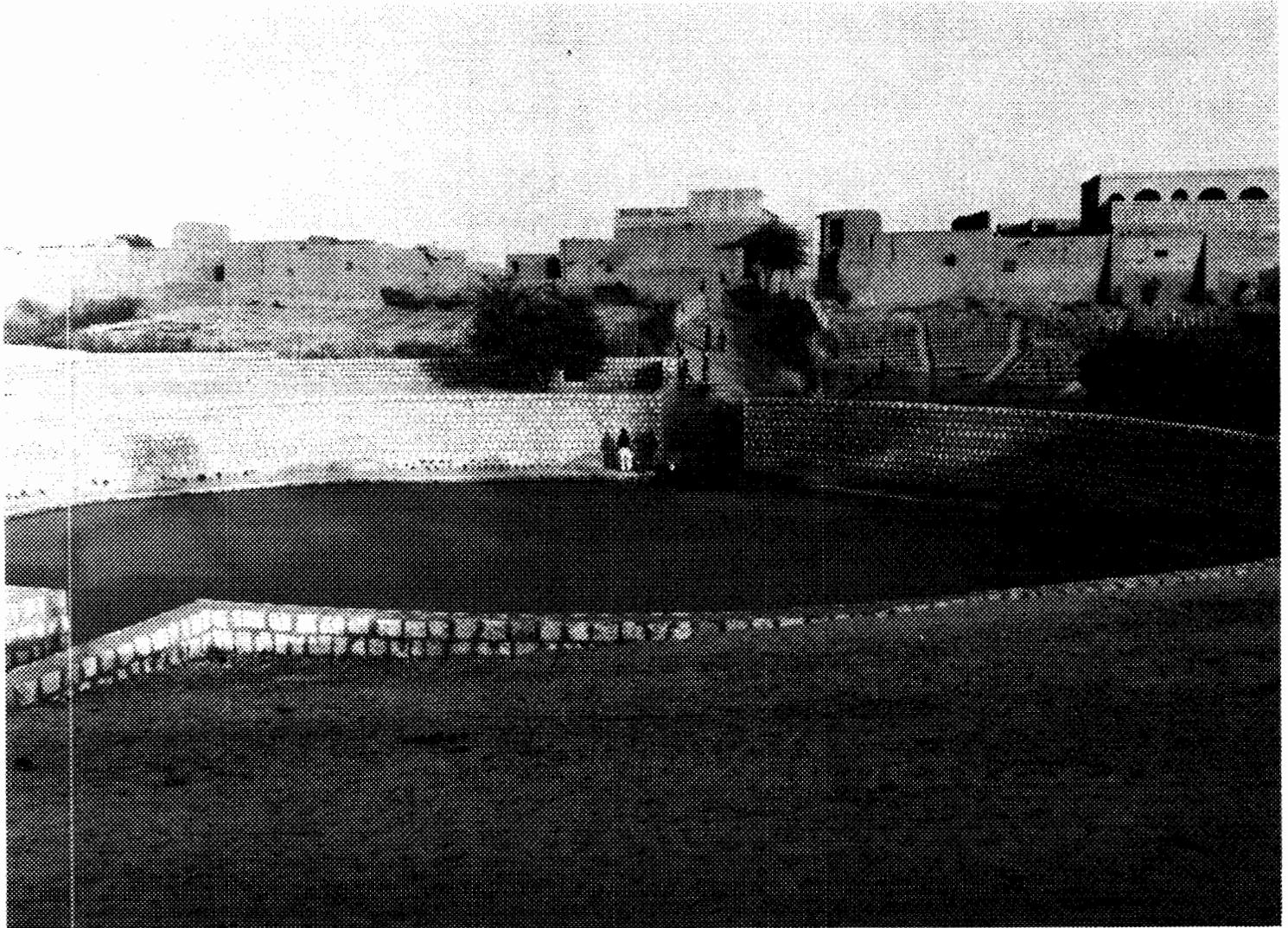
The schools were built of locally made mud bricks, supplemented with cement. Imported tin was used for roofs and wood was brought in for the foundations.

Mali received more than \$19.5 million from AID in assistance. This included a massive food airlift during the drought and the construction of the \$1 million-Gao-Labbezenga Road which was completed last year and serves as an important transport link in northeastern

Mali. Other important projects were the Mono River Bridge near the town of Bougouni at a cost to the United States of \$400,000 and a \$665,000 river transport improvement project in which heavy-duty machine presses and drills were supplied to keep Mali's 13 tugs and 52 barges functioning. This latter project was particularly important since most of the food and gasoline for Timbuktu, Gao, Mopti and other cities are moved by water. The equipment was supplied to Mali Navigation Company docks at Mopti and Koulikoro.

In Upper Volta, Boniface Da, 30, the director of the Ouagadougou Center for Training Rural Artisans, has waged a battle since the 1960's to obtain funding for a national effort to train brickmasons and toolmakers to make and repair agricultural machinery such as plows and seeders. Da, who studied geography in France, assumed the post in 1971 and managed to secure funds to keep the country of five million people supplied with tools for development.

Farm machinery is in great demand in Upper Volta, where a national effort is under way to improve animal traction. Da is concerned mainly with teaching tool-



*In Mali, this city well provides water to hundreds of families. Without this AID-supported project, the effects of the*

*drought could not be overcome. Water is the essential element in recovering from the drought.*

making and repair work because "... it is cheaper than importing tools." Centers in Ouagadougou and Bobo-Dioulasso also utilize village iron workers.

"One of the first things was to teach them to make iron standing up instead of sitting down. You have more mobility if you stand. They are trained for seven months, then they return to their villages with molds and spare parts for plows," Da explained.

AID made grants totalling about \$92,000 to the two agriculture equipment workshops which allowed Da and his staff to purchase vehicles to monitor the training activities in the village. The funds were used for the production of plows, harrows, and carts. As a result, the workshops produce 100 items each per month for animal traction.

Animal traction is not the sole preoccupation of the workshops. Brickmasonry and carpentry are other activities, along with manufacture of well-digging equipment.

Da says that the candidates are selected by the villages and that since 1971, some 346 craftsmen have been trained with 126 others currently undergoing training at the two centers. This project is particularly important in view of the crop failures of 1976 in the millet crop. Many villagers report that it has become difficult to buy millet on the market.

"There is still much to be done," Da said. "Training is expensive and many of our projects could be carried out better if there were more funds. Our country also has a great need for rural technology and better trained instructors," he added.

"The drought has forced us to be innovative," said Belko Kafundo, supervisor of rural operations at the Ouagadougou center. "We have developed a sturdier brick for rural housing. We take five percent cement and the rest is 'bonco', pink clay dirt. Machines are used to press the bricks. This way we can produce more bricks faster."

In Chad, a hot, dusty country of four million people that is about the size of Texas, Syan Yassegwe's task is different from Da's. He has the job of trying to induce Chadian farmers to work during the cool season (December and January). Normally this time of the year farmers choose to save their energy for the fall harvest. Usually there is little to eat and it's a time to conserve one's energy.

But, Yassegwe, a forestry engineer, supervises the planting of 550 hectares (1359 acres) of drought-resistant trees in the central region near Koulemara, where the American voluntary agency, CARE, operates under an AID grant. Yassegwe has involved 250 farmers in the planting and maintenance of 50,000 Neem and Acacia Albida trees, an important project in Chad where there is desert encroachment.

"When we first started, there were only 50 farmers willing to work. Now there are lots of people working," Yassegwe said.

Each farmer gets a share of dried peas, biscuits and sorghum grains, supplied as part of AID's Food for



*Seven-year old Bouremina Oumarou and his uncle till the family field in Koubou-Kire, Niger.*

Work program. The program is essential to Chad which has suffered severe setbacks in its cereal production this year. As a result, the government has requested restoration of emergency food grain shipments.

"It's hard to ask a man to work when his stomach is empty. The Food for Work program helps us get the trees planted and the farmer gets extra food for the non-harvest time of the year," Yassegwe said.

Yassegwe is always quick to take the lead and show the farmers how the foresting work should be done. He quickly grabs the hatchet to chop menacing weeds from around the young trees. When it comes to drilling holes for seedlings, he shows an equal amount of enthusiasm.

"It's hard work," he sighs. "But if the trees survive for two years we know that they can make it on their own. We have now planted about 50,000 of them in various parts of Chad."

Abdoulaye Diop is an organizer also. Diop, 27, a former school teacher in Dakar, the capital of Senegal, has rallied the 1,400 Wolof tribesmen in the northern village of Ronkh. Life is hard in this Senegal delta village near the Mauritanian border where the river winds through hot and dusty terrain.

As president of the Ronkh Youth Association, Diop and a group of stubborn young men have refused to accept the premise that Sahelians exist at the mercy of nature.

The elders of the village no longer advise their

people to be patient and wait for the life-giving waters of the Senegal River to overflow and irrigate vital food crops in the delta. Last year, Ronkh's young men harvested 600 tons of tomatoes and 300 tons of rice, making their village self-sufficient.

"We have 400 hectares of land under cultivation," Diop added. "It would have been higher but last year there was a problem with rats and birds. Some of the children would even sit out in the fields and chase away the birds."

The traditional cereal crop in the Sahel is millet but Ronkh has new food alternatives--tomatoes and rice--due to the success of this project.

When Diop began organizing in 1967, there were only seven backers but now there are 30, including lots of support from the village itself. But Diop's work was not easy. For seven years, he was frustrated in his attempts to get government funding for the small project. In 1974, Diop approached AID officials in Dakar and after careful study of the agricultural potential of Ronkh, a grant of \$122,000 was awarded to the association.

The grant made possible the initial purchase of seed, fertilizer, a rice thresher and two motorized water pumps, one furnished by Africare, a U.S. private, self-help group based in Washington, D.C.

Probably the most difficult task in drought relief,

however, was locating new sources of water and keeping existing wells functioning. AID provided over \$1 million to this effort. As a result 88 wells were either repaired or constructed in Senegal. This activity was carried out by the national repair center in Louga which was established by the Department of Hydraulics in 1974.

"We are in a better position to keep them running than before the drought," said Alphee Guillabert, assistant director of the Louga Deep Well Repair Center. "But more needs to be done. We need more equipment and spare parts.

"Our capacity has been increased by 50 percent. During the drought we had an enormous problem with water distribution. Our equipment was extremely old, some of it over 20 years old."

AID supplied tank trucks and hydraulic pumping motors to the center. "They allowed us to pull out the old tubes (for water conduction in the wells) in half a day. It used to take us weeks. Now the only problem is getting enough spare parts to keep the wells running. We replaced 57 motors and now there is irrigation around the well sites."

Being a member of an agriculture cooperative was a strange feeling for Seidou Oumarou, a garden farmer near the village of Koubou-Kire in Niger. Oumarou, who appears to be in his early 50's, is a tall, dark, slender man with a serious face.

"There has been a change in my life," says Oumarou. "We never had to pay the government for the use of the land. But it's all right now because we earn much more. With this new type of farming (flooding the rice patties) we get two harvests a year instead of just one. Now the water is pumped up; before we had to carry it."

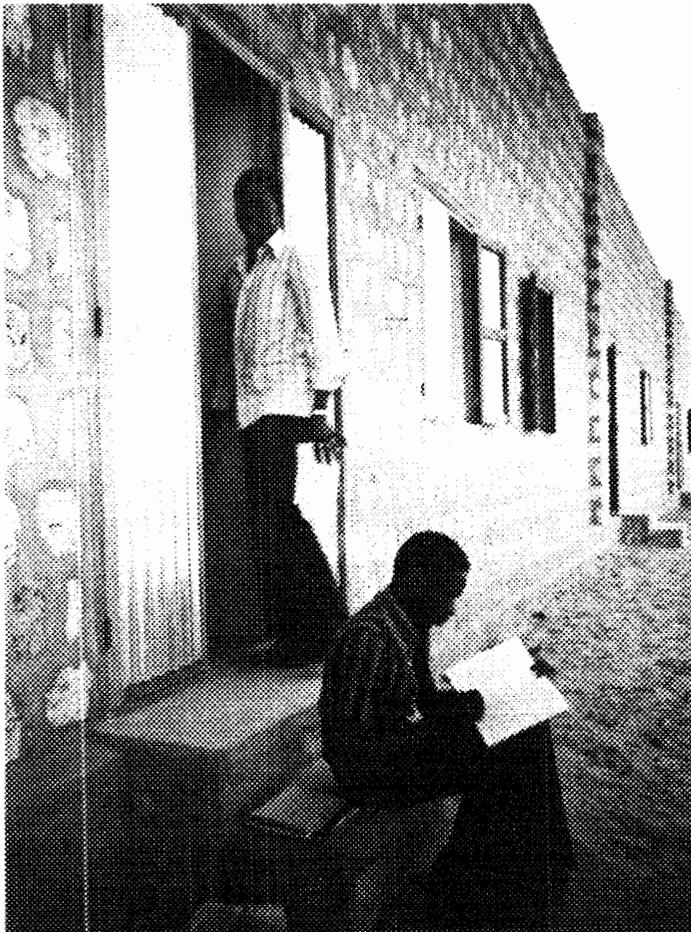
The project, financed with a \$370,000 AID grant, is allowing local farmers to produce nearly twice their annual outputs. Oumarou says that he now produces five tons of rice from his 364 hectares of land.

Of course, his overhead is low because all of his workers are family, usually his two sons and younger brother. Even seven year old Bouremina does his share of the hoeing and planting.

"Cinquieme" and "Premier" are suburbs of Nouakchott, the capital of Mauritania, a desert inferno of 1.5 million people. Cinquieme and Premier are refugee camps that sprang up in 1972 when over 70,000 desert nomads swarmed into the city to escape the bitter drought.

Mauritanians called it "tent city." But it has evolved from fluttering layers of tents to more permanent, but shoddy, wooden huts and brick structures that are now referred to as settlement camps. They are filled with still-proud nomads who were betrayed by their beloved desert.

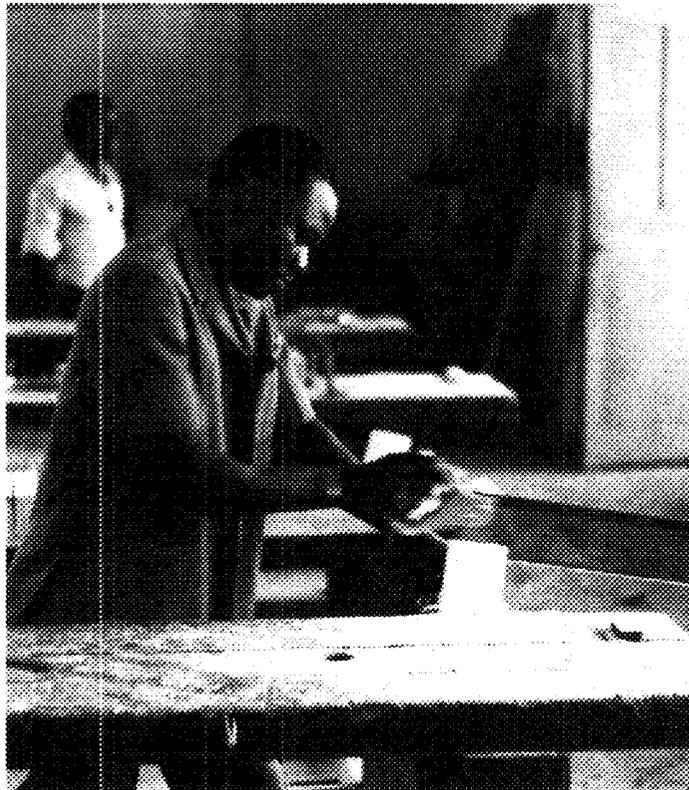
In the camps, disease and poverty associate freely and the children are the chief victims. Measles and malaria are widespread. The unhealthy environment of



*A school built with AID assistance in Timbuktu provides educational opportunities for men and women.*

the camps compelled the government of Mauritania to appeal for foreign assistance. Upon request, AID made available over 72,000 metric tons of food between 1972 and 1973. Other contributions included medicines, vitamins and tarpaulins and the construction of grain storage facilities in various parts of the country.

Presently AID is attempting to tackle the serious problem of educating nomad women and children by funding the construction of a women's training center and a kindergarten in Nouakchott. The school, built at a cost of \$175,000 will contain five classrooms, a courtyard for play, toilets and a kitchen, according to its principal-to-be Madame Mariem Hamidnou.

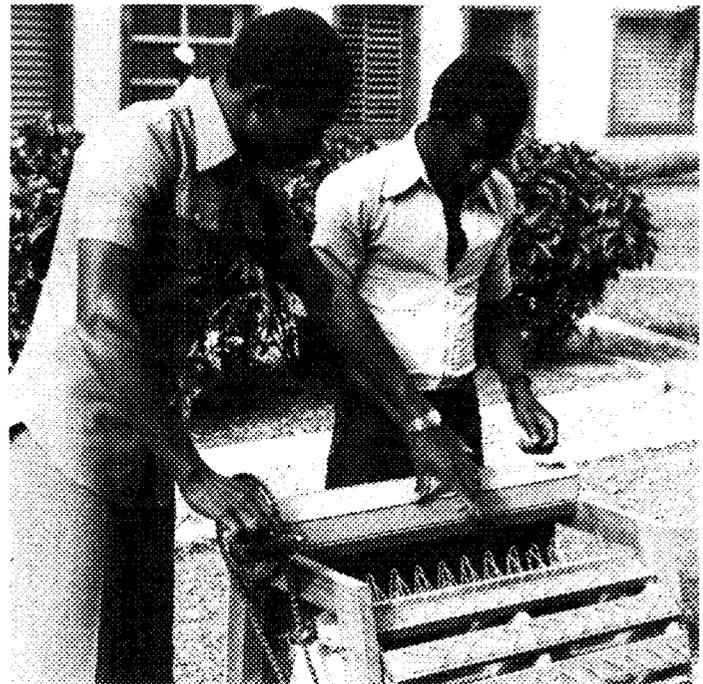


*AID funds helped build an equipment workshop in Nouakchott. Here men learn how to use special tools and equipment.*

"It is just what we need. There are so many new children in Nouakchott that we don't know how to educate them," she says.

The curriculum established by the Mauritanian Social Welfare Ministry will emphasize arts and crafts and singing, and a parents association has been formed to support the school's activities. The school will be in operation this summer.

Nomad women will be assisted in adapting to the urban routine by the new Women's Training Center. Basic training in sewing, cooking, nutrition and child care will be offered. Little instruction was available to these women in the past. The program will be expanded soon to include typing and other secretarial skills. The training will help meet the demand for clerks in government and business.



*Mauritanians use a brick-making machine to help in constructing schools and other buildings.*



*Sewing classes for women are part of the educational program at the women's training center at Nouakchott.*

Last fall Mauritians suffered further hardships as cereal (millet and sorghum) production dropped to a meager 21,000 metric tons because of insufficient rainfall. Less than one-third of the desert country's land area is arable and virtually any sizable crop failure will cause widespread suffering.

"We have become accustomed to the drought," said Gay Gandega, Mauritania's Minister of Cereals. "What we try to do is lessen the impact. But this year there hasn't been much rain and consequently crop production has been low.

"If there is another drought this year, people will starve. There will have to be another airlift," Gandega said, referring to the U.S. airlift of food into remote areas of the country in 1973.

After relatively good cereal harvests in 1974 and 1975, 1976 brought a return of drought-like conditions as the Senegal River failed to overflow and irrigate crops on the Mauritania side of the river. As a result, some 80,000 hectares of land were laid to waste.

The developed nations of the world, led by AID, undertook an expensive emergency relief program that paved the way for short-term development projects that included road construction, disease research projects, resettlement activities and budget support to buttress the sagging economies. With the exception of Mauri-

tania and Senegal, per capita income in the Sahel is below \$100 annually. The region is marked also by high birth rates and high infant mortality and the inability to produce enough food to feed its populations—even in normal years.

The United States is contemplating a long-term developing program along with France, Canada, Great Britain, the United Nations Development Program and other donors that is aimed at "permanent transformation" of the region by making it self-sufficient in food production. The undertaking will involve extensive development of the river basin areas to allow for irrigated agriculture.

At the May conference of the Club des Amis du Sahel in Ottawa, Canada, some 21 nations made pledges to aid the Sahel. The United States has committed \$200 million and Canada is preparing to commit \$230 million over the next five years. By the year 2000, the developed nations are expected to commit \$10 billion to the long-term program.

It is clear from the commitments made by the developed nations and by the Sahelian nations themselves that it is no longer believed that life in the region exists solely at the mercy of nature. The world also demonstrated that it will not stand idly by and allow a repeat of the disaster.



*Nomads flocked to refugee camps near Nouakchott in 1972. Over 70,000 desert nomads flocked to the camps which soon*

*became tent cities. The tents are being replaced by permanent, but shoddy, wooden structures.*

# Meeting Basic Human Needs

by Maurice J. Williams

We have agreed on the importance of emphasizing social as well as economic progress and the need for equity as well as growth. Where social and equity considerations need to be taken more into account—and this is the case for most countries—it is a matter for a gradual rather than abrupt shift in policies. However, the adoption of a basic needs approach must be part of an overall strategy of development.

Growth in the sense of increases in material production, brought about by technological transformation, is absolutely necessary. We know that economic growth will not take place without the adoption of appropriate policies and priorities. We are now coming to recognize that it is best achieved with a certain social and political transformation, which is based on broad participation in the process of change as well as a better distribution of its benefits and costs.

There is no universal agreement on how this complex process can best be done. It may be that a minimum critical mass in social and economic change must be reached if it is to produce an appropriate interaction between growth, employment, mass participation and satisfaction of basic needs.

An inherent part of social and economic transformation is social struggle which will differ over time in different countries. This has been the case in the industrial countries, and there is no reason to believe that it will be different for Third World countries. In formulating its proposal for a Basic Needs Strategy, the ILO stressed that it should be "country specific." Each country is locked into a particular historical process of change, and its policies and priorities must be tailored to its specific circumstances.

Yet there are fundamental values applicable to all countries. Human rights and meeting basic economic needs are among these values. The basic thrust for human rights and basic needs, however, must be pursued with a due regard for realism and without dogmatic insistence on specific programs.

Many of the DAC members favor a stronger emphasis on basic needs and more consideration of social aspects of development. They recognize that this should be pursued with developing countries through "quiet di-

plomacy." Donors have an obligation to counsel governments on priorities and development as they see it. However, attempts to force their views only breed resentment and failure. What dialogue and advice, mixed with compassion, cannot achieve will not be achieved.

An approach to economic growth and meeting basic needs dictates certain priorities in investment which certainly should include an emphasis on rural development, agriculture, and small-scale industry. This does not mean that in some developing countries and at some stages that it is not equally important to emphasize industry, including heavy industry.

It is now well recognized that developing countries should not just copy the technology in use in industrially advanced countries, but evolve and adapt technologies that suit their own needs and circumstances. Labor-intensive or capital-saving technologies are of particular relevance to most developing countries. But there are instances where sophisticated technologies are indispensable for more rapid elimination of mass poverty. The need is to emphasize an appropriate pace and range of technological transformation, which combines capital-intensive and labor-intensive technology, in an efficient mix.

The concept of basic needs is a dynamic one. It concentrates attention on the quality of life and the factors that make a better life more broadly available to large numbers of people. It focuses development on national policy and structural change in developing countries. But it also requires broad progress and structural changes at the international level as well. A poverty-oriented approach to development calls for more—not less—development assistance. For all these reasons adoption of a basic needs strategy appears to open the prospect for a more satisfactory relationship and partnership with developing countries.

The Development Assistance Committee is considering measures, by both developing countries and donors which would raise the capacity to achieve development results with a more basic needs-oriented program. We have concluded that donors should avoid looking for "perfect solutions," working with and building-up existing institutions; that the financing of local costs should be expanded; that "planning from below," through greater participation of people at local level, should be further pursued; that technical assistance should be more sharply focussed on overcoming constraints for basic needs-oriented projects and that criteria for projects should be re-appraised in cooperation with developing countries. These questions are to be pursued in special studies by the DAC on "Issues of Absorptive Capacity."

Additional work by the DAC on Basic Needs Strategy is planned through further conceptual formulation, analysis of experience and programs underway, consideration of its relevance for estimating aid requirements, and as part of preparatory work for the Third Development Decade.

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*Mr. Williams, a frequent contributor to **War on Hunger**, is Chairman of the Development Assistant Committee of the Organization for Economic Cooperation and Development.*



# IN PRINT Controlling Food Production

A Review by F. James Levinson

*Food First: Beyond the Myth of Scarcity*, by Frances Moore Lappe and Joseph Collins with Cary Fowler; Houghton Mifflin Co. Boston, 1977, 466 pp., \$10.95.

Some of the most powerful, perceptive and revealing writing about a field is often done, not unexpectedly, by those largely outside its establishment. In the 20th Century the names of Lincoln Steffens, Upton Sinclair, and Ivan Illich come most immediately to mind. In their new, popularly-written book, *Food First*, authors Frances Moore Lappe and Joseph Collins lay solid claim to share in this distinction. Lappe, is best known as the author of *Diet for a Small Planet*, which probably sold more copies than the combined total of nutrition textbooks and nutrition education handbooks written since the beginning of time.

*Food First* begins with the assertion that every country in the world has the capacity to feed itself, but that simply increasing agricultural production will not eliminate hunger. Our heads nod and we say to ourselves, that's right, the problem is one of distribution—and we think of farm to market roads, storage depots, feeding programs and remote villages. Wrong, say Lappe and Collins, "Food distribution only reflects the more fundamental issue of who controls and who participates in the production process."

The picture they paint is profoundly disturbing. The advantages of agricultural "modernization" go primarily to larger landholders who are "credit-worthy," who benefit most from government price policies, and who can afford the irrigation and fertilizer on which new seed varieties are dependent. As production becomes more profitable, one finds a

whole new class of "farmers": money lenders, military and government officials and city-based speculators. We see increasing farm mechanization, and a rapidly growing tendency to use the best land for more profitable cash crops. (In Colombia, one hectare planted with wheat or corn yields roughly 12,500 pesos a year. The same hectare planted with carnations would yield 1 million pesos). The poor, meanwhile, are displaced as tenants (it's more profitable for landowners to farm the land themselves) and subsistence food grain production is shifted to marginal lands which increases food prices and, at the same time, exacerbates soil erosion.

To make matters worse, the larger landholdings actually produce less food than small concentrated holdings. The authors cite considerable evidence including a World Bank study of six Latin American countries, indicating that the value of output on small farms is from three to fourteen times higher per acre than that of large farms. Where national food supply does expand, the increases go primarily for middle and upper income group consumption, livestock (in 1973, two thirds of Colombia's "green revolution" rice went into livestock feeding or beer production) and exports. With this "inefficiency of inequality," the authors ask, are we really approaching "natural limits" in food availability, or can means be found to affect a system which creates shortages and which, in the process, compounds the deprivation of the poor? The International Labor Organization notes sadly that the rural poor in the seven South Asian countries (comprising 70 percent of the rural population of the non-Communist underdeveloped world) are worse off than before, and notes that "the increase in poverty has been associated not with

a fall but with a rise in cereal production per head . . ." Being cut out of production means being cut out of consumption.

Governments and the public at large, unable or unwilling to deal with these basic structural problems, often work at least implicitly on the premise that the poor are to blame for hunger and that the answer is compulsory family planning or enforced migration. The other frequent scapegoat is the natural disaster. Here Lappe and Collins have accumulated some mind boggling evidence to suggest that even in such disasters the allocation of food resources is based first on profits. During the infamous Bengal famine of 1942, almost 200,000 tons of rice were exported from the province. Cattle exports from the Sahel during 1971 (the first drought year) totalled 200 million pounds, up 41 percent from 1968. In the preceding decade, Niger quadrupled its cotton production and tripled its peanut production. The authors compare these situations with that of China where crises of the weather also occur but where they are absorbed by a "food first" mentality and one which mitigates the impact of weather on any given individual.

In a readable and highly accessible question and answer format, Lappe and Collins address these and a host of other related questions including major sections on agricultural trade (the "global supermarket"), "food power", multinational corporations and international agencies. Some may ask what all of this has to do with nutrition. The answer is, of course, that nothing is more central. To the extent that national policies affect consumption or nutritional well being, it is primarily those policies which affect the incomes of the poor and the prices they pay. This means agricultural pro-

duction, land use, price and trade policies often dwarf, in their nutritional impact, the effects of explicitly-labeled nutrition policies. Those of us working in the field of nutrition should never allow ourselves to be misled into the false security that these issues aren't our concern.

There are problems with *Food First* as there are with many advocacy documents. Perhaps the most serious of these is the penchant of the authors to paint governments and assistance agencies as conspiring monoliths with malicious intent rather than as spectra of opinion and outlook. Institutions once thus labelled can do no right. If they try land reform they are accused of diffusing the peasant movement. A program of subsidized food consumption is seen as a ploy to keep prices down and diffuse discontent with authoritative regimes. The problem, of course, is that such unbalanced interpretation and selective evidence often have the effect of becoming self-fulfilling prophecies. Rather than strengthening the hands of those on the spectra working for constructive change, the institutions themselves cease to be taken seriously. There are too many instances in *Food First* of the perfect being the enemy of the good.

There also are problems of generalization. The international trade chapters relate far more to Latin America and Africa than they do to South Asia. The often romanticized discussion of pre-colonial periods ignores the considerable exploitation which existed even then. The discussion of decentralized decision making makes no mention of the difficulties in circumventing the problems of class and local ruling elites.

But these are minor problems in a book which succeeds so effectively in exposing the traditional myths about world food. It is destined to have an enormous impact on public thinking on this subject in the years to come. Many in the academic community will scoff at *Food First* for just this reason, reflecting a snobbish disdain not only for the popular, but for any book which takes

a strong position on issues of public policy. We'll be told it isn't scientific, that the conceptual framework is wrong, that the sample is biased and the data isn't conclusive. What they're really saying, is that they feel considerably more comfortable keeping the problems of hunger and malnutrition at a respectable arm's length.

The real contribution of *Food First* is not with its answers—they will take many years to evolve for the large majority of low income and industrialized countries with centrist political ideologies. Rather it is in asking the critical questions, and in a manner which assures that they be taken seriously. The frankness with which the authors discuss their own struggles and self doubt is in fact likely to generate very considerable empathy among countless numbers of concerned persons around the world who have been frustrated in their attempts to get a handle on the hunger issue. I found myself at times wincing and swallowing hard, and at other times angrily shaking my head. But I never found myself doubting the power of *Food First* or the conviction that it is essentially right.



## IN BRIEF

### Food for Chad

A recurrence of drought in Chad in central Africa, coupled with crop failures this year, has created famine conditions for thousands of persons there. To meet this emergency, U.S. Food for Peace supplies are being distributed with help from the Agency for International Development.

To cope with the emergency, AID's Office of Foreign Disaster Assistance is contributing \$603,000 to help the Cooperative for American Relief Everywhere (CARE) to ship 7,545 metric tons of soy-fortified bulgur and soy-fortified sorghum grits

from N'Djamena in western Chad to about 30 distribution centers established by the Chad government in the drought area.

Altogether, the U.S. Government has donated 18,400 metric tons of Food for Peace emergency food to Chad this year. Food and medical supplies also are being offered by other international donors.

### Tunisian Housing

The Agency for International Development will guarantee a private United States investment of \$10 million in housing projects for low income families in Tunis and other cities of Tunisia. About 65,000 persons are expected to have access to better housing as a result of this investment.

Securities covering the investment were marketed by a group headed by Morgan Guaranty Trust Company of New York.

The \$10 million loan is the initial financing of a \$20 million program covered by housing guarantees which will include three different projects: (1) providing potable water, sewerage and drainage facilities as well as valid land titles for a Tunis low-income area where about 45,000 persons now live; (2) furnishing minimal expandable "core" housing units on sites already provided with water and sewerage services for about 10,000 persons in other cities; and (3) financing for inexpensive housing units in the Ibn Khaldoun development which was partially financed by a previous private U.S. loan covered by a housing guarantee.

The new United States private financing will allow the Tunisian government to undertake a program of slum upgrading and to rehabilitate existing housing covered by a substantial private investment.

### SEED Program Grants

Global problems ranging from pollution in the Aegean Sea, wilting potato crops in Brazil, and sources of food and medicine in the Philippines will be studied by U.S. researchers awarded grants by the National

Science Foundation (NSF).

The awards, totaling \$284,950 were made to 30 scientists and engineers from 27 U.S. colleges and universities under a program administered by NSF's Scientists and Engineers in Economic Development (SEED) program. Now in its seventh year in NSF's Division of International Programs, the SEED program is funded by the Agency for International Development (AID).

The U.S. researchers will spend up to a year teaching and conducting research in biology, mathematics, engineering, chemistry, energy, food and nutritional sciences and other fields. They were invited by universities and technical institutions in the developing countries.

#### AID Assists Swaziland

Swaziland has requested U.S. assistance to help transform its current subsistence economy into a productive agricultural economy capable of generating cash crops for commercial export. In response, a 10-man team of U.S. agricultural advisors has arrived there to begin drafting a national program of rural development.

The 10-week study, funded by the Agency for International Development and assisted technically by the U.S. Department of Agriculture, will seek to determine which cereal and fruit crops should be encouraged in the tiny southern African nation of 600,000 people.

The AID-USDA team will establish the foundations for more detailed agricultural planning in the area of land use, soil conservation, and the training of Swazi personnel in these two important areas. Another concern will be the training of agricultural equipment managers and mechanics.

#### Upper Volta

A team of four rural development specialists from Michigan State University will spend the next two years in primitive rural African surroundings.

They will help improve the agri-

cultural production and quality of life in Upper Volta, one of several Sahelian countries in French-speaking West Africa.

The MSU professors will work under a \$645,300 contract with the Agency for International Development.

The MSU specialists will conduct farm surveys on costs and return of current practices and proposed modifications; establish a pilot farmer training and services center to serve as a model for suggested changes; help train Voltaic personnel to engage in programs to promote self-sufficient rural modernization and agricultural development; and design complementary sub-projects and plans for possible program replication in other parts of Upper Volta.

## QUOTES

"Bumper harvests in the United States and other producing regions must be heartening to a hungry world. It is estimated that there will be a surplus of 30 to 40 million tons of wheat alone this year. But even more encouraging than the bounty of grain in hand, is the evidence of a growing national and international political will to conquer the problem of world hunger."

*The Christian Science Monitor*  
July 5, 1977

"Increasing numbers of people are hungry and malnourished. Possibly as many as 450 million to one billion (out of four billion) persons in the world do not receive enough food. Malnutrition causes more damage than outright starvation. The loss of vitality undermines a person's capacity to savor life."

*National Academy of Sciences Report*  
June 23, 1977

"Most Americans would like to see the world's developing nations move toward democracy, and hopefully most of them eventually will. But they are all starting from different bases than the U.S. and will follow different paths to democracy than the U.S. did. For now, for most people in developing nations, the most important things are the most basic things—food and shelter, agricultural and economic development. Democracy comes second to these."

*Atlanta Constitution*  
June 27, 1979

"The United States will have to provide a substantial amount of the food that will be needed in wealthy countries as well as in developing ones. However, farmers have been getting less grain an acre, on average, since 1972. Corn yields, for instance, have dropped sharply, perhaps because farmers have used less high-priced fertilizers."

*Dan Morgan*  
*Washington Post*  
June 26, 1977

"Through the exercise of power and the pursuit of self-interest, a gap has developed between the United States and nations of the Third World. What is needed is to bring about a dialogue between us and you to bridge this gap in a peaceful and creative way and fulfill on a world scale some of your achievements in America. But the process of give-and-take between the Third World and the more advanced world is not a static process. The dynamic interchange should enrich us both so that we can produce the kind of world system that can achieve peace, stability, and the unhindered pursuit of happiness for all, while preserving individual identity in a community of free people the world over."

*President Anwar Sadat of Egypt*  
*Time*  
February 28, 1977



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