

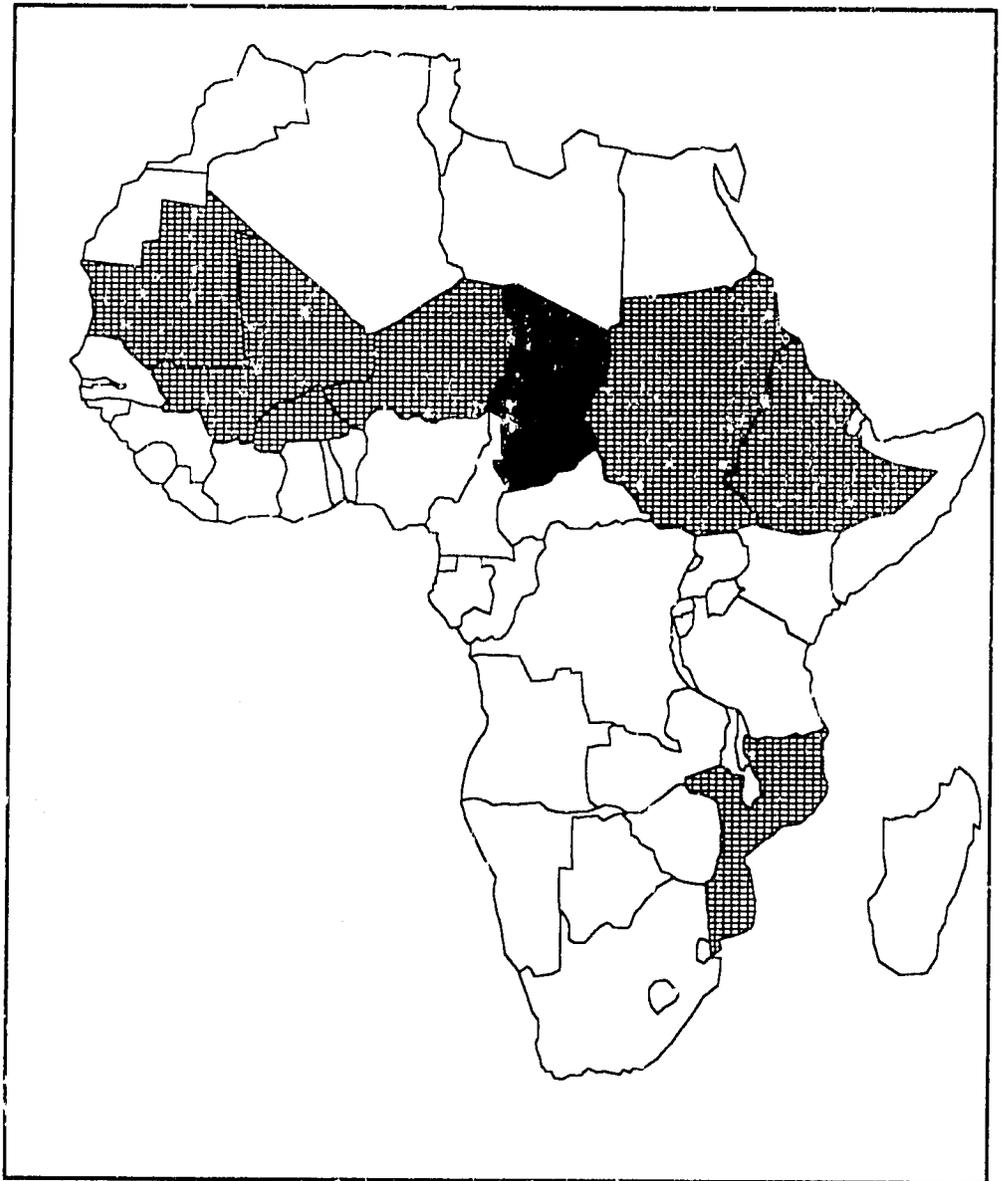
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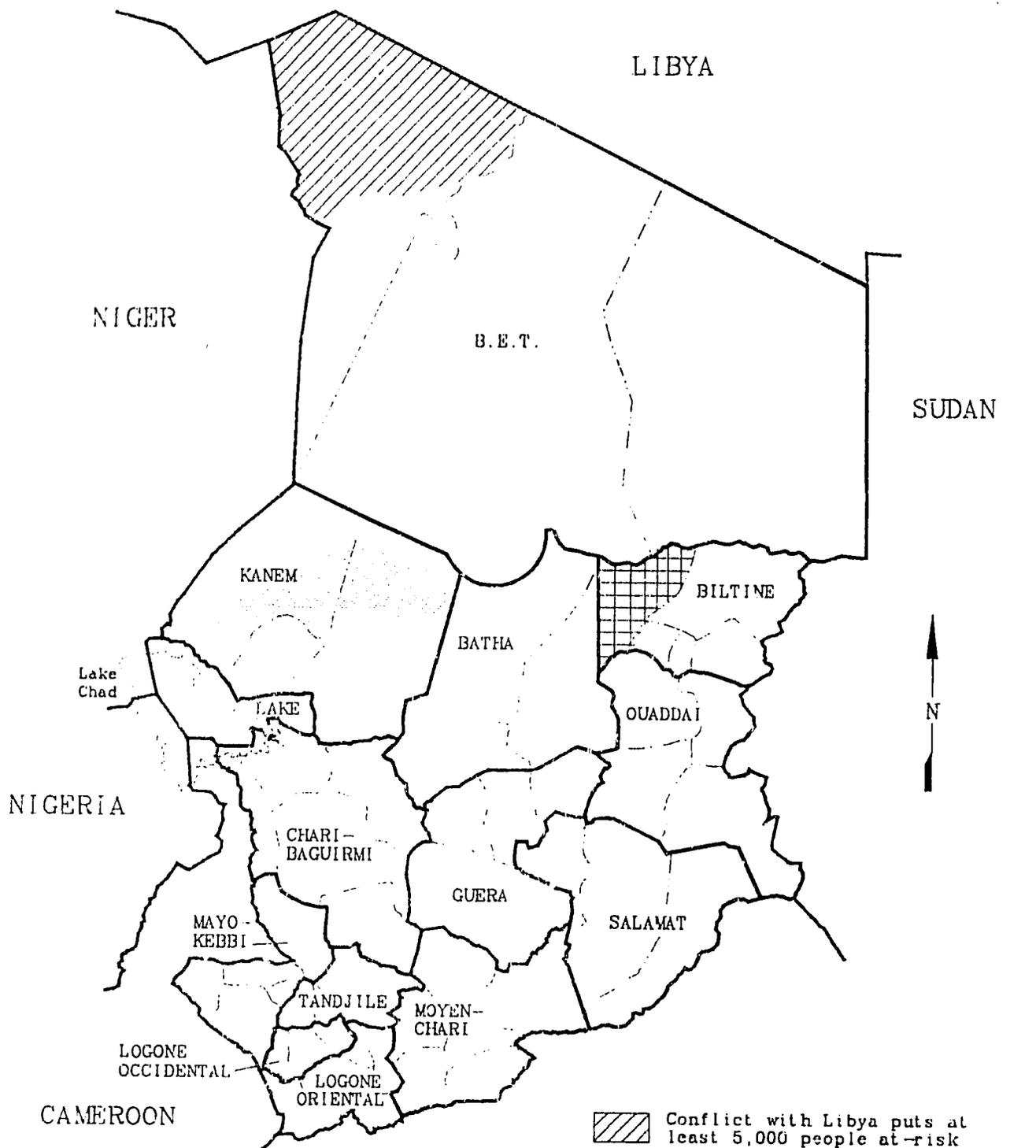
## FEWS Country Report

# CHAD



Africa Bureau  
U.S. Agency  
for International  
Development

# Summary Map



-  Conflict with Libya puts at least 5,000 people at-risk
-  Long term dryness prevented development of pasturage through mid August. NDVI implies that there has been some vegetative growth since that time
-  Very poor crop conditions may put up to 8,000 people in need of food aid before spring 1988

# CHAD

## Poor Crop Prospects In North and East

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Prepared for the  
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U.S. Agency for  
International Development

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September 1987

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## SUMMARY

August rains were abundant over most of Chad. By the end of August, however, the Inter-Tropical Front (ITF) retreated to 15° North, making continued rainfall uncertain in the Sahelian zone during September. For eastern Chad, August rainfall was probably too late for anything but a poor harvest. Plans are already underway to pre-position enough food for 8,000 people in Arada Sub-prefecture, Biltine Prefecture. Areas of western Chad are also experiencing drought; through mid-August, poor forage was reported in Kanem Prefecture north of Mao Town and authorities in Batha Prefecture have requested aid for 4 of their 19 cantons. Continued fighting in Borkou-Ennedi-Tibesti Prefecture has made 5,000 people there in need of assistance (after having fled the bombing of Aouzou Town). Crop yield prospects for southern Chad continue to be excellent, although it is likely that 1987 production will be less than that of 1986 -- it is reported that farmers are planting more area to cotton this year and less to grains.

## EASTERN CHAD

Eastern Chad (Map 2) has been severely affected this year by lack of rain and by pests (including Senegalese grasshoppers), which in combination destroyed plantings through July. Rainfall during August, although below average, has allowed some progress of crops planted in late July. Evidence from satellite imagery implies that the effects of August rainfall have continued into early September -- recent greening is visible throughout Biltine and Ouaddai Prefectures, and even as far north as Ennedi Sub-prefecture (Figure 1). For the September 1-10 period, Normalized Difference Vegetation Index (NDVI)\*, sufficient to imply potential for pasturage, is registered almost to 16° North.

Nevertheless, the rainfall has arrived too late for eastern Chad to have a normal harvest. Figure 2 compares the September 1-10, 1987, NDVI for Abeche Sub-prefecture with the 1984, 1986, and six year average values for Abeche for the same period. While NDVI values are currently greater even than the values seen last year at this time, the upswing of the 1987 curve lags that of the average curve by about one ten-day period, and lags the

\* The Normalized Difference Vegetation Index (NDVI) is derived from NOAA AVHRR GAC data. The photosynthetic capacity, or vegetative vigor displayed by these images is generally believed to be indicative of the condition of vegetation on the ground, and, at least inferentially, of the growing conditions for crops and pastures. These relationships are, however, only indirect and still the subject of continuing research.

MAP 2: Eastern Chad

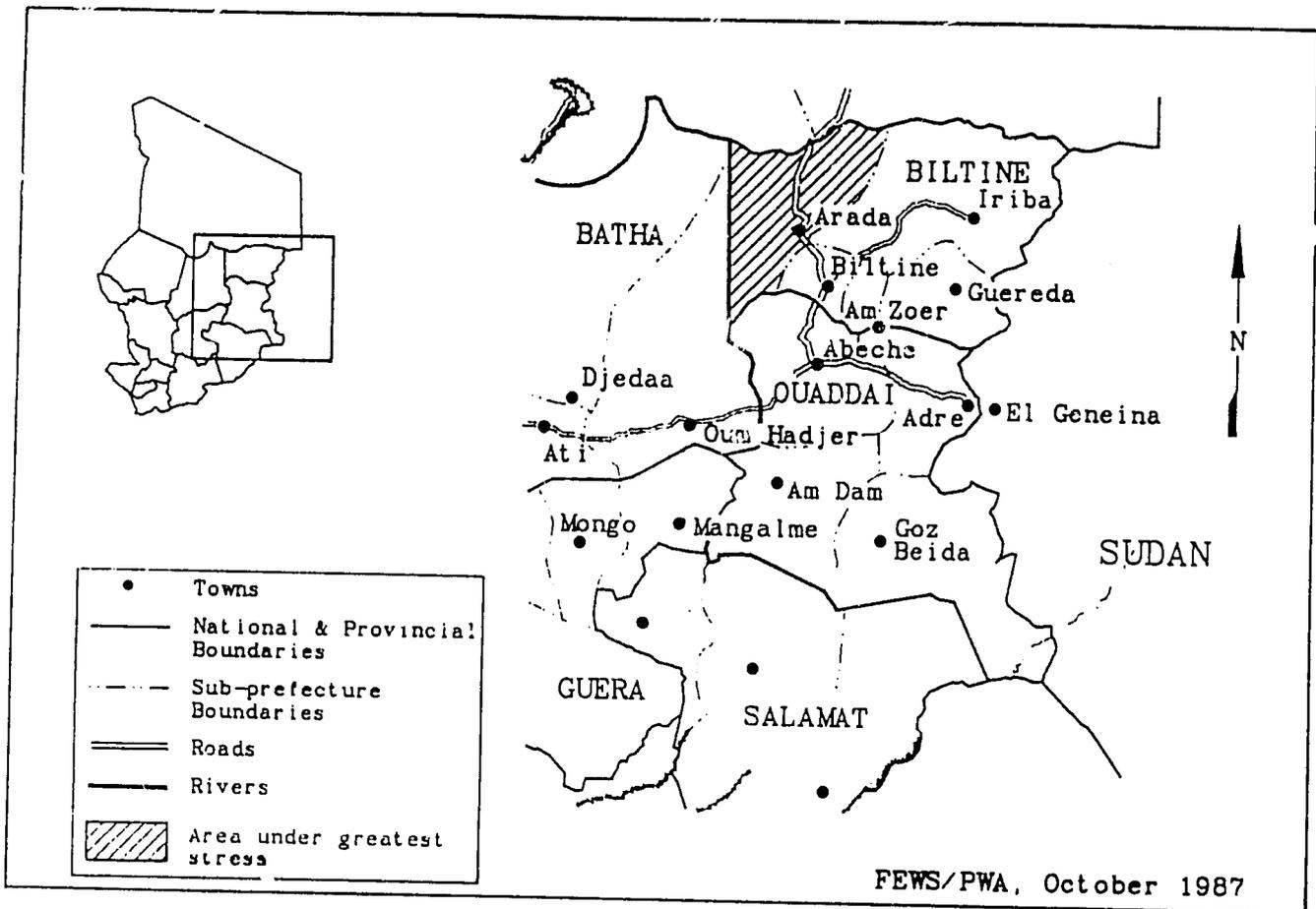


FIGURE 1: NDVI Improved from August 21-31 to September 1-10, 1987

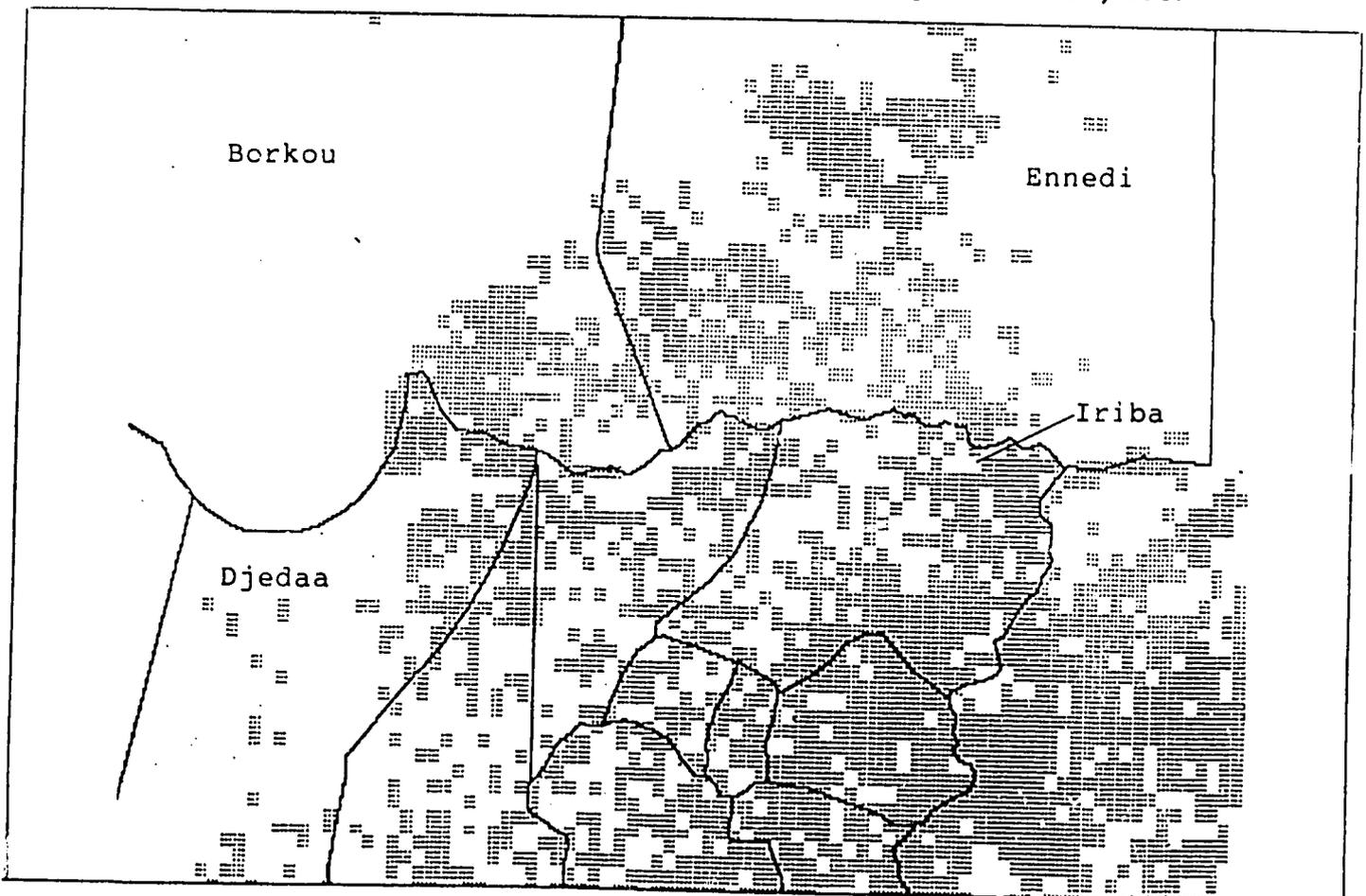


FIGURE 2: NDVI In Abeche Sub-Prefecture

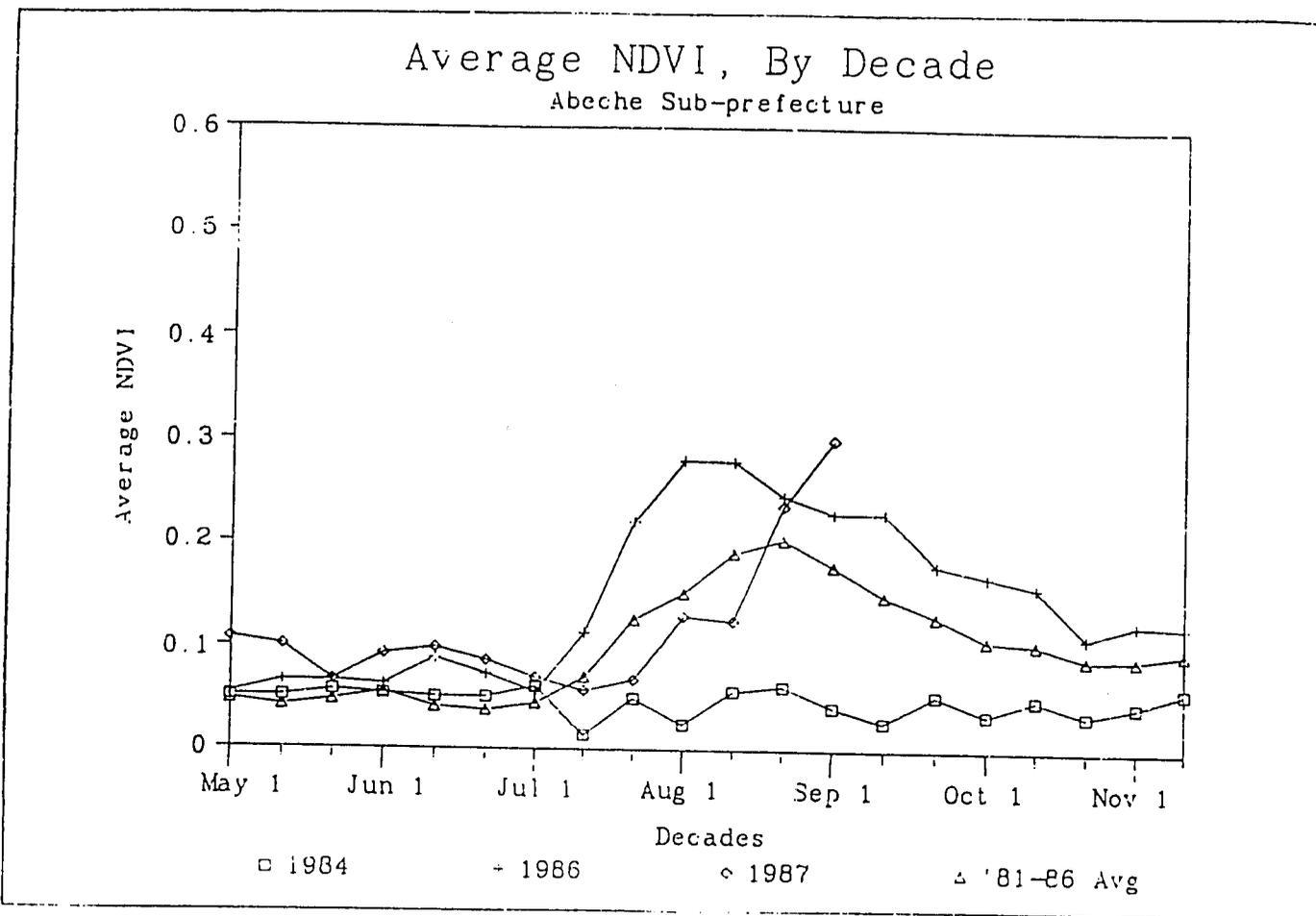
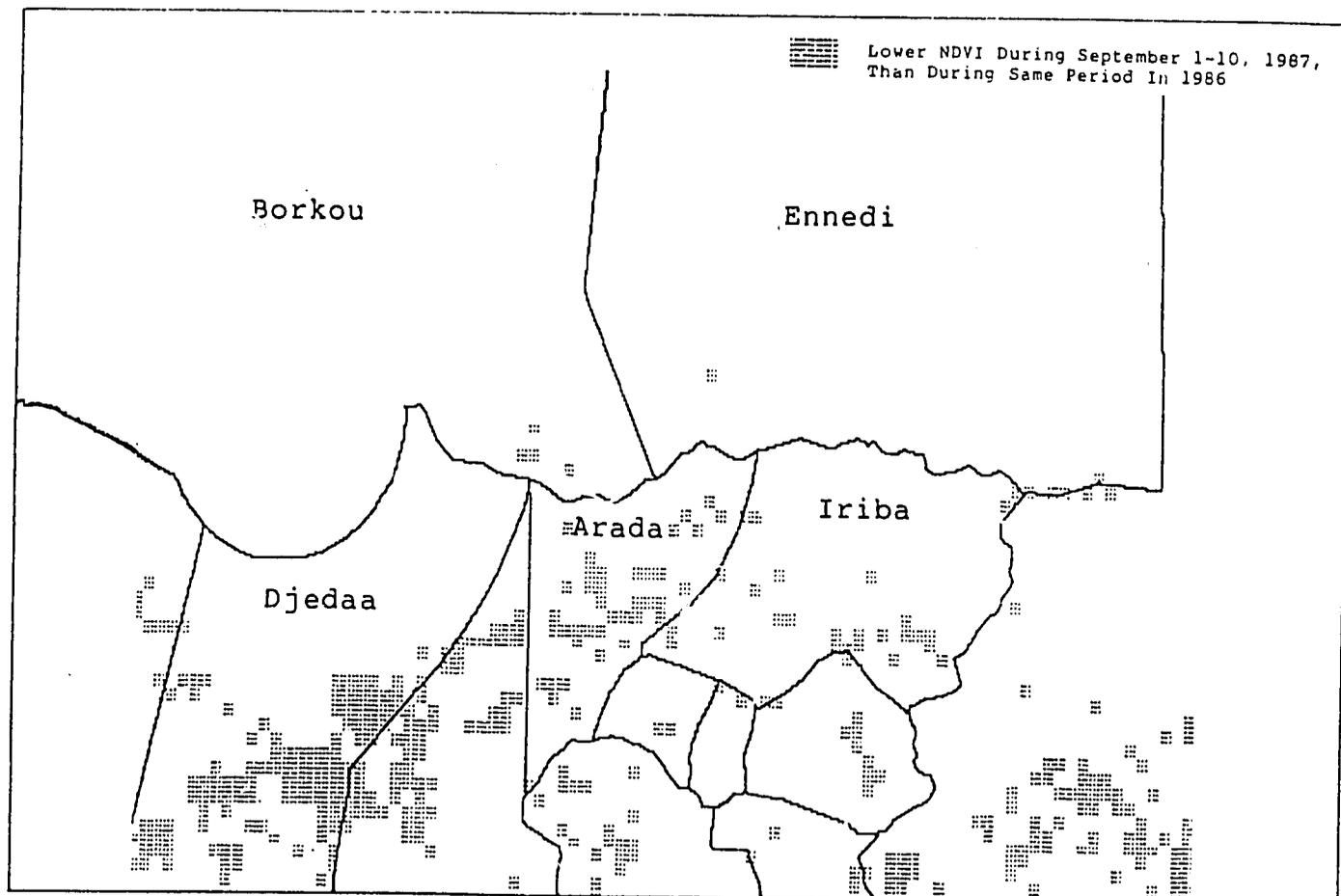


FIGURE 3: NDVI In Eastern Chad



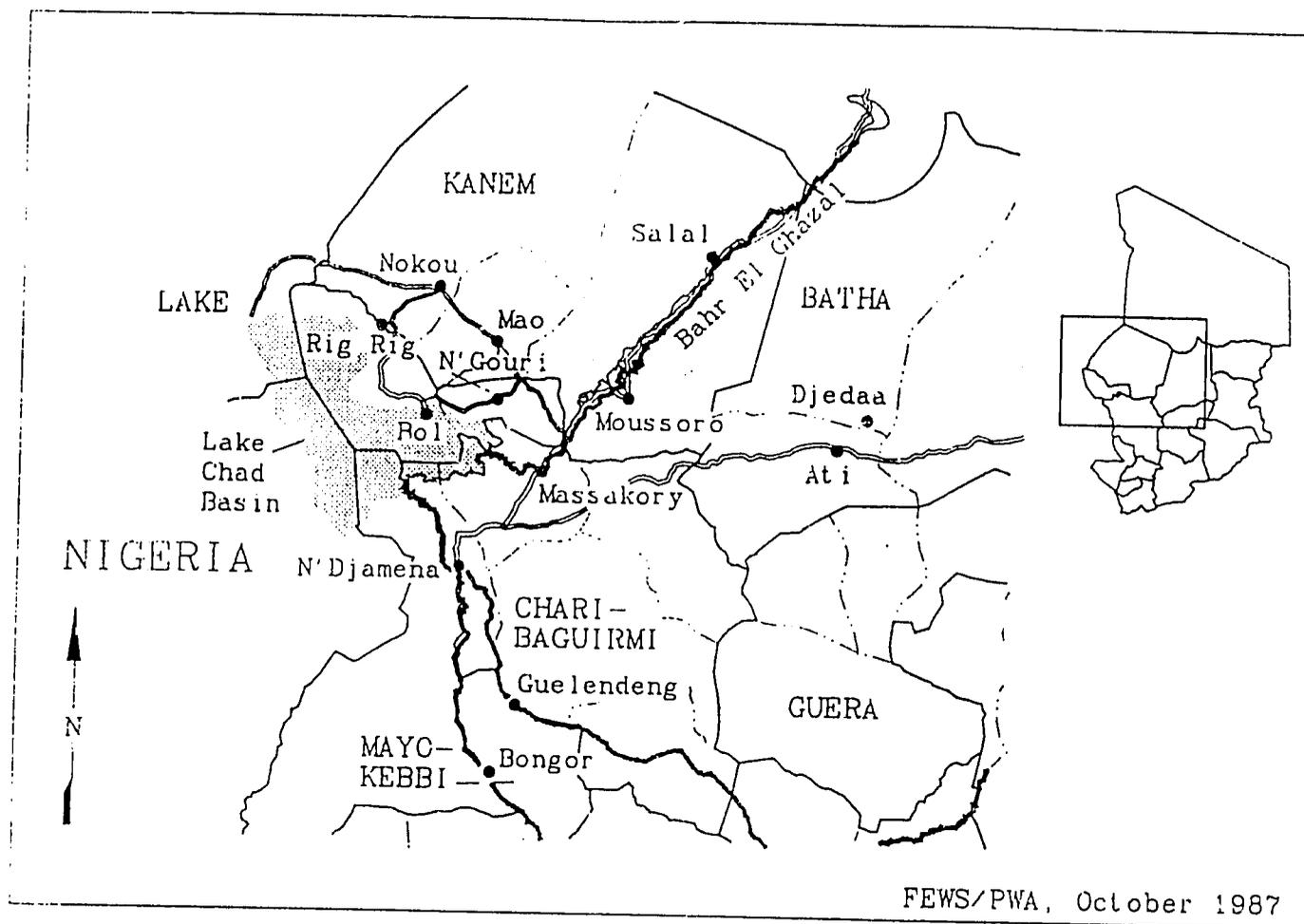
upswing of the 1986 curve by at least 20 days. This signifies a shortened rainy season, as the rains usually end in September. (In only 16 out of the 28 years on record has it rained after September in this area. The average post-September rainfall for those 16 years is 11 millimeters. Even if this entire amount fell at one time, it would be insufficient to aid the crops.)

Reports from the field indicate that, of the eastern sub-prefectures, Arada Sub-prefecture (Biltine Prefecture) is experiencing the greatest drought. While there is no actual rainstation data for the sub-prefecture, evidence from satellite imagery supports the reports of dryness. While Figure 1 shows increase in NDVI from late August to early September, values are still lower than seen in 1986 at this time (Figure 3). Note that although 1986 was a good year for agriculture south of the 14th parallel, 1986 yields were mediocre to poor in much of Biltine Prefecture. In fact, it was necessary to provide food aid this summer in parts of Arada's neighboring sub-prefecture, Iriba. On the recommendation of the European Economic Community funded Agency for Health and Development early warning team in Chad (AEDES), enough food aid for a two-month ration for 8,000 people is to be pre-positioned in this area. While it is feared that the situation will deteriorate when reserves from last year are depleted, high rates of malnutrition are not currently seen.

## WESTERN CHAD

At the beginning of this summer, crop prospects for western Chad (Map 3) appeared almost as dismal as those for the east. Since the end of July, rains have been much closer to normal in the southern part of this zone (including most of Chari-Baguirmi Prefecture and the northern sub-prefectures of Guera Prefecture). The northern areas, mostly pastoral, have still been suffering from lack of rain. Through mid-August, pasturage was reported poor in the vicinities of Nokou, Rig Rig, and Salal towns (Map 3). Increases in NDVI during late August suggested the potential for pasturage as far north as Salal, but early September imagery shows a slight decline in vegetative vigor since that time.

In the south of Kanem Prefecture, there has been enough rain that some crops will be harvested. Last year, people in Kanem Prefecture managed to earn enough income through cottage industries and the sale of small animals to make up for the poor harvest. Yet another year of poor rainfall may stress the local coping system to the point where food aid is needed.



Ouled Rachid Canton, surrounding Djedaa Town in Batha Prefecture, was the area that required food aid earliest in 1987. Although rainfall data are lacking, satellite imagery shows that area to be greener than last year. Other sections of Batha Prefecture, specifically, south of Ati Town along the border with Guera Prefecture and north of Djedaa Town, are not faring as well. Batha Prefecture authorities have asked for food aid for 4 of the Prefecture's 19 cantons. The situation was to be assessed by an AEDES team during the second week of September. If conditions warranted, food aid was to begin as soon as verification was received. While much of Batha had a decent harvest in 1986, there were areas with extremely low reserves.

**SOUTHERN CHAD**

While this year's rains in southern Chad (Map 4) have been reported as erratic, yield prospects for this area are still quite good. The average sub-prefecture NDVI in the south has been close to the six year maximum for much of this growing season (Figure 4). By the end of August there were already reports of the appearance of peanuts, maize, cucumbers, and other produce in the local markets.

MAP 4: Southern Chad

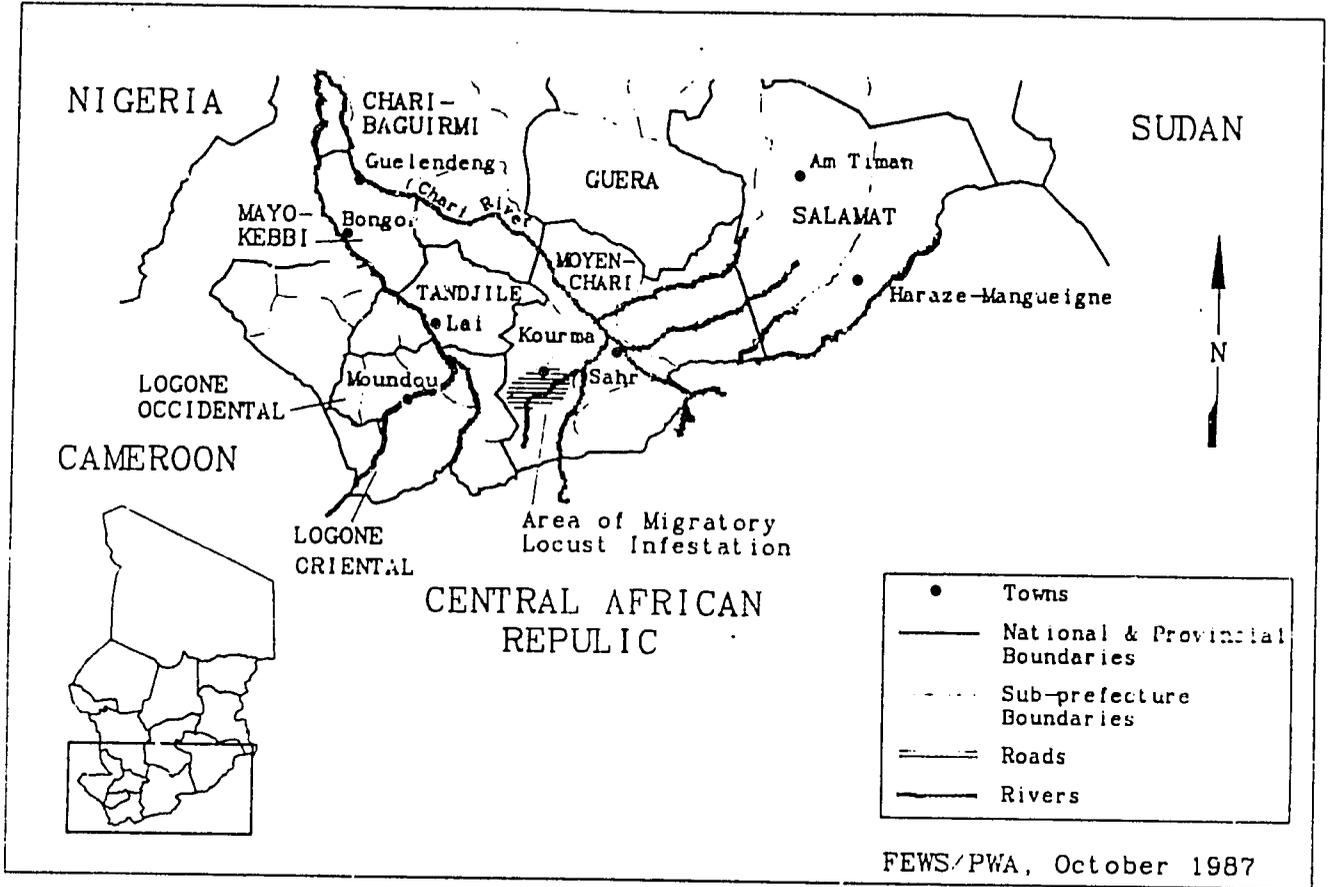
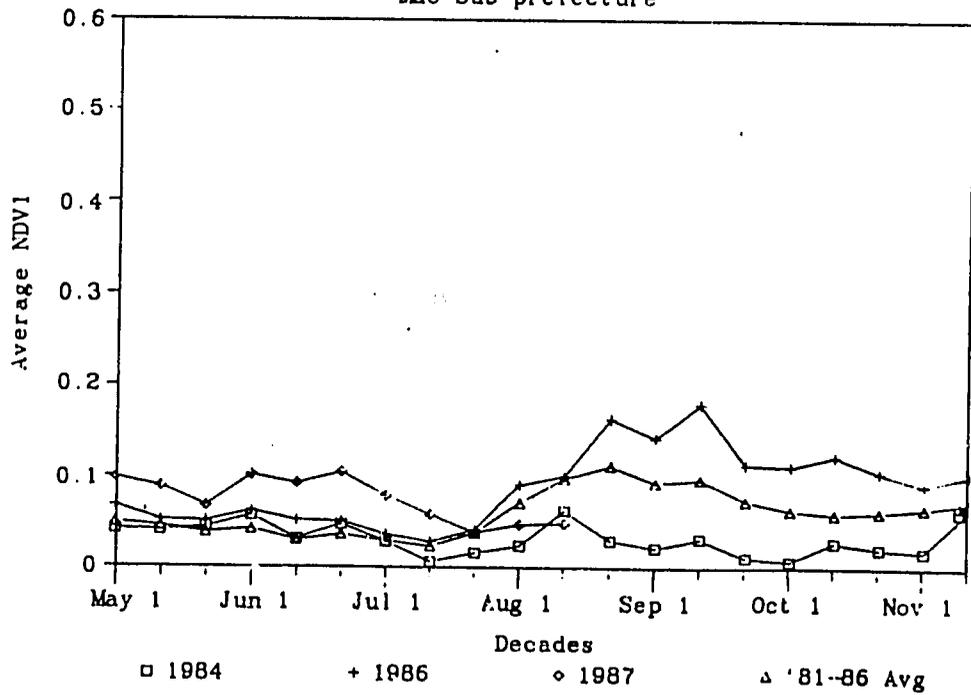


Figure 4: Average NDVI, By Decade  
Mao Sub-prefecture



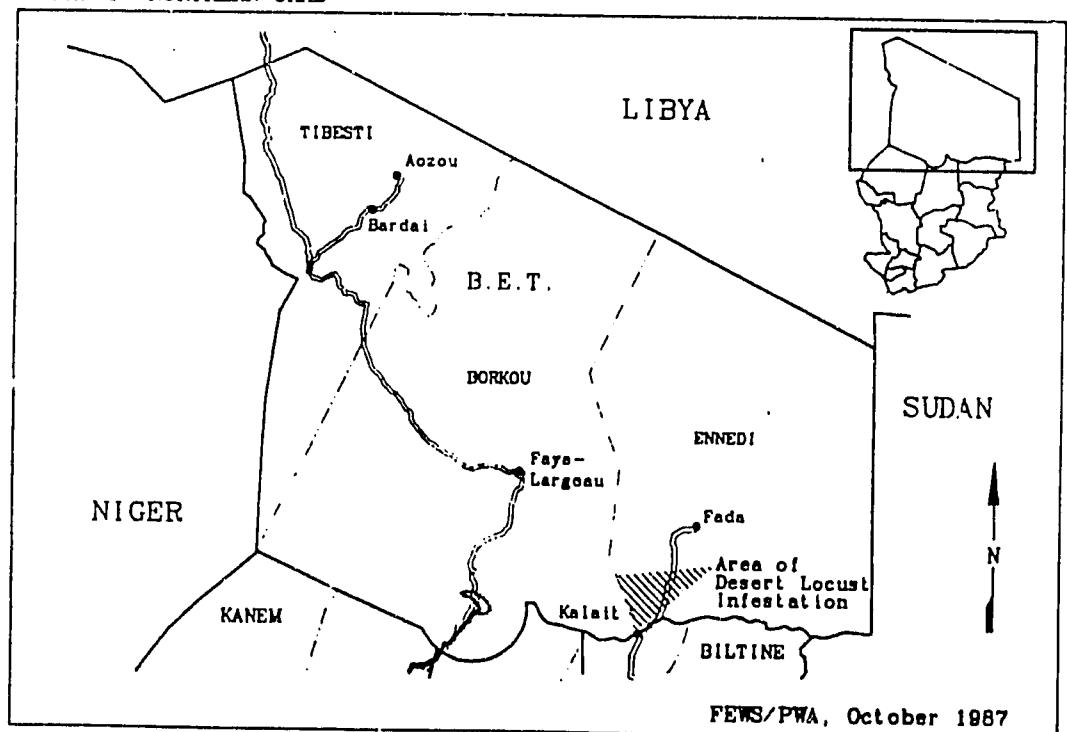
The amount of grain production, which depends on the area planted as well as yield, will possibly be less than last year -- there have been reports that farmers are planting more area to cotton this year in response to the low 1986-87 grain prices. While it is unlikely that this area will experience a food shortage, lower production in this major agricultural zone could diminish the ability of Chad to provide grain from its own resources to areas in the Sahel and Borkou-Ennedi-Tibesti Prefecture (B.E.T.) that lack sufficient production to meet their own requirements.

Pests in the south continue to be a nuisance, including grasshoppers, quelea birds, and armyworms. The damage so far this year remains within the normal range, and so should not reduce production to any unexpected degree. The previously reported Migratory Locust infestation near Koumra (Map 4) has been treated.

#### NORTHERN CHAD

Strife in B.E.T. has not yet ended. The recent Libyan bombing of Aouzou town (in northern Tibesti Sub-prefecture; see Map 5) has put civilians there at risk. The bombing caused an estimated 5,000 people to flee to the area of Bardai Town (the chief town of the area). Local authorities have requested food aid and shelter for these people, but poor road conditions and questionable security in this highly mountainous area make the provision of aid difficult. As of September 5, no decision had been reached by the multi-donor/government ministry/PVO Food Action Committee (CASAD) on how best to aid people in this combat zone.

MAP 5. NORTHERN CHAD



Desert Locusts are still found near Kalait (Map 5). While ground teams had treated 3,254 hectares of hoppers (juvenile, non-winged locusts) by September 14, eggs were still hatching in the area. The upsurge of greening, deduced from the increase in NDVI shown in satellite imagery (Figure 1), will provide a favorable habitat for the Desert Locusts. The widespread greening will allow the locust populations to disperse, making treatment more difficult. At the same time, however, greater dispersion will reduce the tendency of the locusts to swarm, minimizing their threat to croplands to the south and east.

This is the fifteenth/sixteenth in a series of monthly reports on Chad issued by the Famine Early Warning System (FEWS). It is designed to provide decisionmakers with current information and analysis on existing and potential nutrition emergency situations. Each situation identified is described in terms of geographical extent and the number of people involved, or at-risk, and the proximate causes insofar as they have been discerned.

Use of the term "at-risk" to identify vulnerable populations is problematic since no generally agreed upon definition exists. Yet, it is necessary to identify or "target" populations in-need or "at-risk" in order to determine appropriate forms and levels of intervention. Thus for the present, until a better usage can be found, FEWS reports will employ the term "at-risk" to mean...

...those persons lacking sufficient food, or resources to acquire sufficient food, to avert a nutritional crisis (i.e., a progressive deterioration in their health or nutritional condition below the status quo), and who, as a result, require specific intervention to avoid a life-threatening situation.

Perhaps of most importance to decisionmakers, the FEWS effort highlights the process underlying the deteriorating situation, hopefully with enough specificity and forewarning to permit alternative intervention strategies to be examined and implemented. Food assistance strategies are key to famine avoidance. However, other types of intervention can be of major importance both in the short-term and in the long run, including medical, transport, storage, economic development policy change, etc.

Where possible, estimates of food needs are included in the FEWS reports. It is important to understand, however, that no direct relation exists between numbers of persons at-risk and the quantity of food assistance needed. This is because famines are the culmination of slow-onset disaster processes which can be complex in the extreme.

The food needs of individual populations at-risk depend upon when in the disaster process identification is made and the extent of the cumulative impact on the individuals concerned. Further, the amount of food assistance required, whether from internal or external sources, depends upon a host of considerations. Thus the estimates of food needs presented periodically in FEWS reports should not be interpreted to mean food aid needs, e.g., as under PL480 or other donor programs.

FEWS does not collect primary data. Rather, it receives information from various domestic U.S. and international agencies and private voluntary organizations, and from government agencies in the countries under study via in-country FEWS Public Health Advisors. The information is then examined, compiled and analyzed for its predictive potential. Without the ongoing cooperation of all these organizations, FEWS could not function.

In particular, this report owes a debt to various offices of the US Agency for International Development (AID), Department of Agriculture (USDA), National Aeronautical and Space Administration (NASA), National Oceanic and Atmospheric Administration's National Environmental Satellite, Data, and Information Service (NOAA NESDIS), the NOAA/NESDIS Assessment and Information Services Center (AISC) and USAID/Nouakchott; the Government of Chad (GOC) Ministry of Food Security and Displaced Persons (MSAPS), Crop Protection Service (CPS), and multi-ministry-donor-PVO Food Action Committee (CASAD); the multi-donor funded Agro-Hydro-Meteorological Center in Niger (AGRHYMET); the European Agency for Development and Health (AEDS); the UN World Food Program (WFP); the Cooperative Institute for Applied Meteorology (CIAM) at the University of Missouri (in conjunction with NOAA/NESDIS); and CARE.

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