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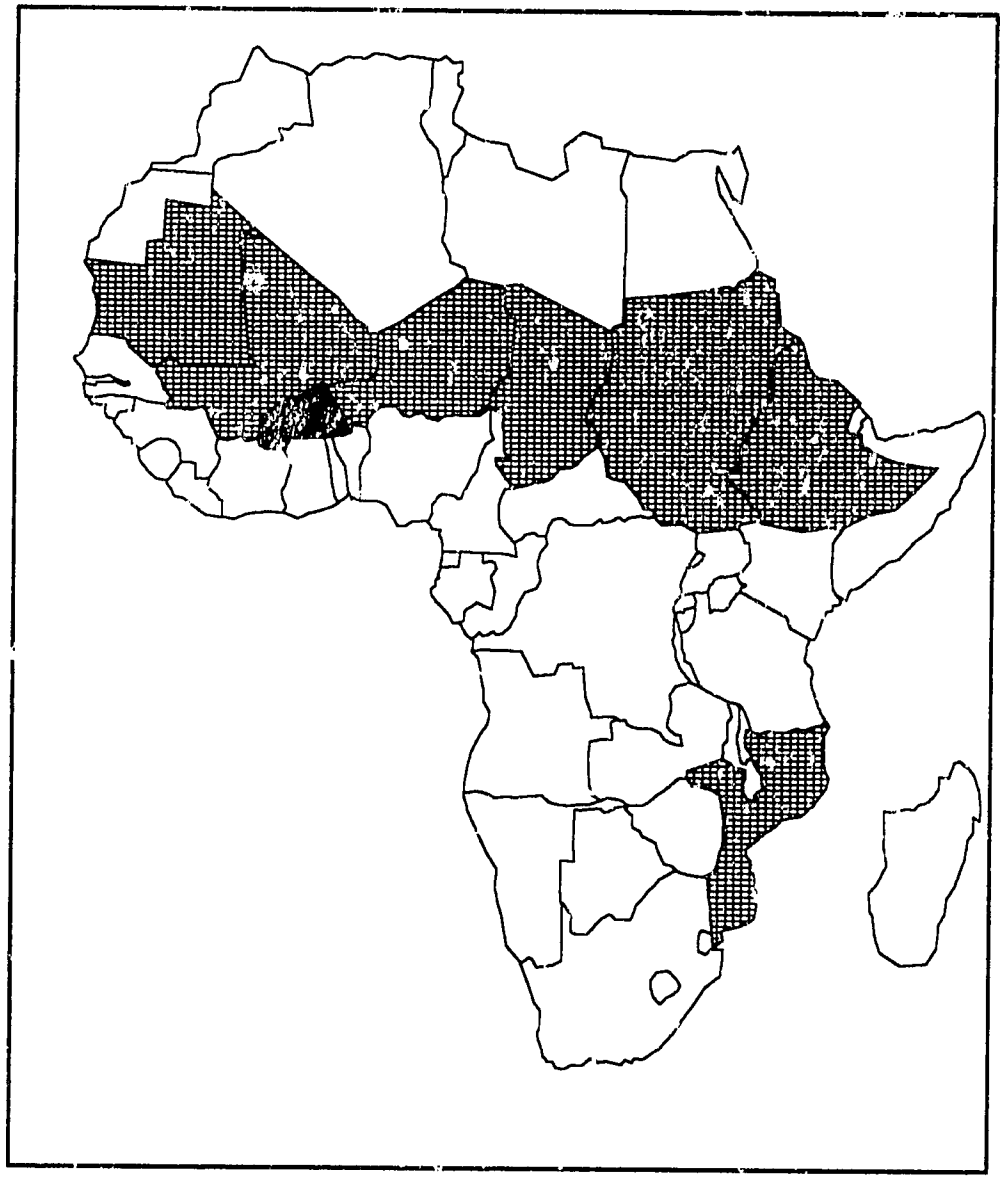
September 1987

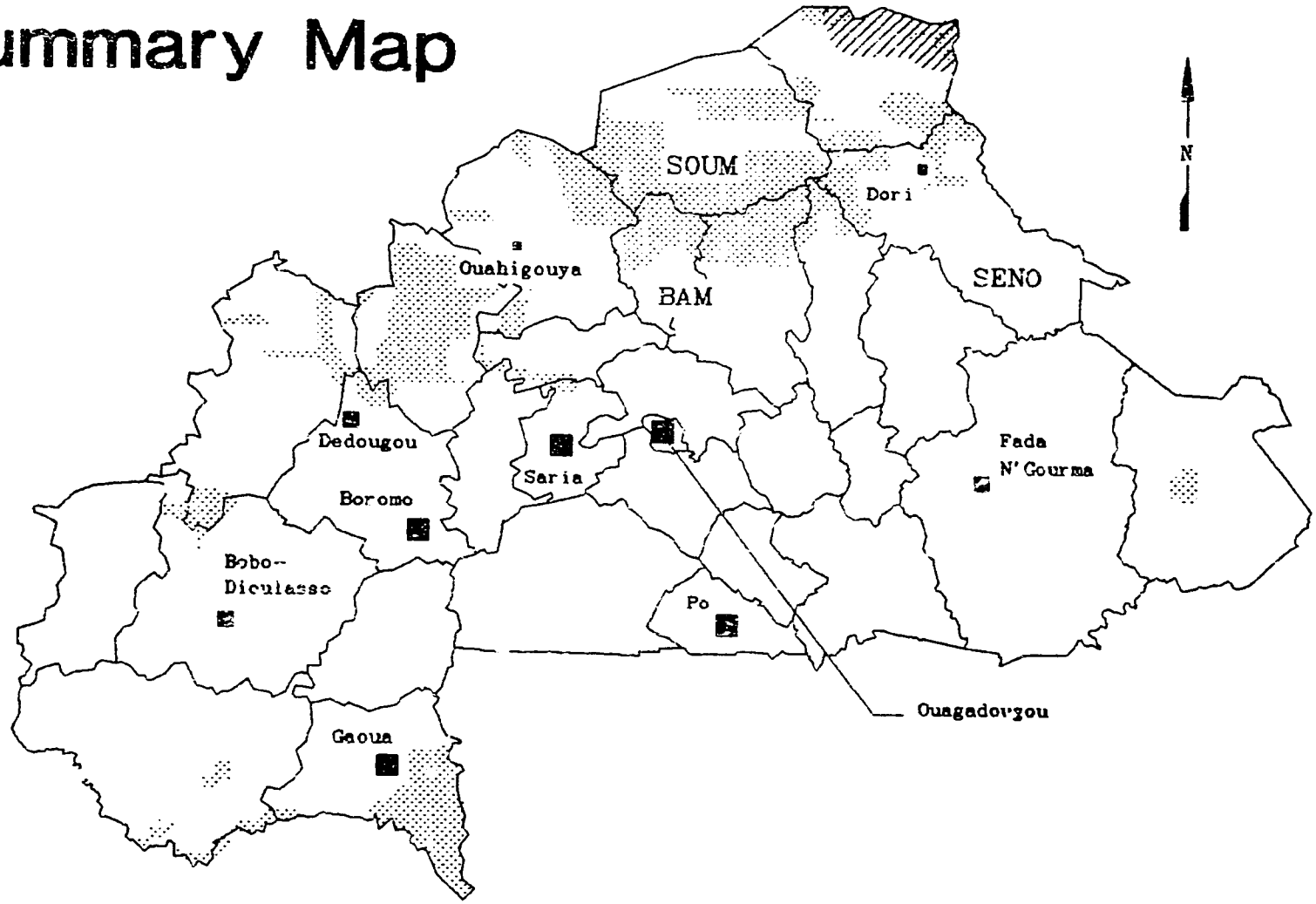
FEWS Country Report

BURKINA



Africa Bureau
U.S. Agency
for International
Development

Summary Map



Rainfall Through August 10:
- ▪ <70% of 1951-80 average
- ■ >75% of 1951-80 average
- ■ >85% of 1951-80 average

Vegetation during August 10-20 worse than the historic (1981-86) minimum

Populations vulnerable to food shortages

Famine Early Warning System Country Report

BURKINA

Cereal Gap Likely

Prepared for the
Africa Bureau of the
U.S. Agency for
International Development

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September 1987

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SUMMARY

Although cumulative rainfall through August 20 was between 91% and 100% of last year's levels at the stations in the south and west of Burkina (Gaoua, Bobo-Dioulasso, Boromo, and Po), the late start to the rainy season will probably reduce yields below last year's outstanding levels. The late rains resulted in late sown crops, which are likely to cause decreased yields[1]. Additionally, some crops in these areas will not mature until late in the season, which may reduce harvest prospects because rainfall in late October may not be adequate for good crop development[2]. Satellite imagery continues to show vegetation conditions above the 1981-86 maximum in the central provinces, extending from Mou Houn to Gourma (see Figure 2). Imagery also indicates that vegetation conditions are below the 1981-86 minimum in: the northern halves of Sanmatenga and Namentenga, Bam, the southern two-thirds of Soum, Sourou, southern Oudalan, northern Seno, and northeast Yatenga Provinces, suggesting that 1987 harvest prospects in these areas are very poor. Current food supplies and/or purchasing power in the northern provinces appears adequate, with a few exceptions. For example, the Government of Burkina (GOB) Ministry of Agriculture, reported that families in Tin-Akof (Oudalan Province) were selling swords, jewelry, and suitcases to procure food.

Indicators

- Although the Drought Commission received numerous unconfirmed reports of food shortages during its trip to the north at the end of June, thus far, only one request for assistance (from Seno Province) has been received by the Ministry of Family Welfare. The magnitude of the reported food shortage is unclear.

- According to USAID/Burkina, cereal stocks are adequate throughout Burkina, although in Gorom-Gorom, the price of a 100 kg bag of millet rose from 7,500 FCFA in June to 9,000 FCFA by the end of August, suggesting that stocks are becoming less plentiful.

[1] Low yields can be expected from late sown crops for primarily two reasons: 1) they are subject to increased damage from insects which have multiplied on earlier sown crops; and 2) they do not benefit from the flush of nitrogen that is released with the first rains because the nitrogen is subsequently leached, once the soil is saturated with rain water.

[2] Photosensitive crops (e.g., some varieties of sorghum, pearl millet, and rice) that are dependent upon day length will mature by the end of September, as long as they were planted before the end of July, and, consequently, will not be affected by the possibility of inadequate rain in October.

- In order to meet 100% of Burkina's grain needs with domestic production, 1987 net cereal production will have to reach approximately 1.63 million metric tons (MT).

VULNERABLE POPULATIONS

In late June members of the Drought Commission travelled to the northern provinces to assess the food supply situation. They determined that most areas had adequate food supplies, although they received unconfirmed reports that food shortages existed in pockets in each of the provinces visited (see Burkina Report 14). Local authorities were advised to approach Ministry of Family Welfare representatives to request assistance if local solutions could not be found. Since that time, the Drought Commission has received only one request for assistance from Seno Province. This request, for 16 tons of cereals for the entire 6 month hungry season, did not indicate which populations were in need of food, nor did it indicate whether the food would be sold immediately or stored. Additionally, the System d'Alerte Precoce (SAP) June report indicated that OFNACER had over 3,000 MT of cereals in its warehouses in Seno, and that market supplies were plentiful. The seriousness of the situation is, therefore, uncertain.

As of June, 75% to 85% of the villages in Soum and Oudalan that are monitored by SAP had exhausted their cereal reserves. However, SAP reported that purchasing power was adequate. The GOB Ministry of Agriculture concurred with SAP concerning Soum Province, but reported that purchasing power in Tin-Akof (Oudalan Province) was weak, and some families were selling swords, suitcases, and jewelry to procure food. Since the SAP report, the price of a 100 kg bag of millet in Gorom-Gorom has risen from 7,500 FCFA to 9,000 FCFA. The latter figure approximates the current price of millet in Niamey.

RAINFALL AND VEGETATION

Cumulative rainfall, as of August 10, was between 91% and 100% of the 1951-80 average at Gaoua, Boromo, Saria, and Po (see Table 1 and summary map for locations of rain stations). A dry period from July 1 to July 20 in the Bobo-Dioulasso and Ouahigouya areas resulted in, respective, rainfall deficits of 95 mm and 72 mm below the 1951-80 average for this twenty day period. During this dry period, crops were at various stages of growth, and it is likely that seedlings were particularly stressed. At the rain stations in Ouahigouya and Dori cumulative rainfall was, respectively, the fifth and third lowest since 1951. During the second decade in August, some wilting of crops, which are at the tillering and heading

stages of growth throughout Burkina, was noted at Dori and Fada N'Gourma.

Table 1: Cumulative Rainfall Through August 10 (mm)

Station	1987	1986	% of 1951-80 Average	% of 1986	1951-80 Average
Gaoua	567	616	593	92	96
Po	512	564	511	91	100
Bobo-Dioulasso	507	505	605	100	84
Boromo	486	498	513	98	95
Saria	442	568	464	78	95
Ouagadougou	424	448	478	95	89
Dedougou	397	492	481	81	83
Fada N'Gourma	395	328	505	120	78
Ouahigouya	251	337	372	74	67
Dori	183	233	310	79	59

Source: Government of Burkina National Meteorological Office

Because this year's rainy season in Burkina began approximately one month later than normal, planting was still in progress at the end of June throughout most of the country. This is particularly a problem in the south and west, where planting is generally completed earlier. According to the Ministry of Agriculture, the rains will have to continue in this area through October for a good harvest. At the four rain stations in the south and west (Gaoua, Bobo-Dioulasso, Boromo, and Po), the 1976-86 median for rainfall during the last two decades in October ranged between 20.5 mm and 33 mm.

Satellite imagery for August 11-20 suggests that vegetation conditions improved from the previous ten day period (decade) in the central and southern provinces, declined in the southwest, and did not change significantly elsewhere. Vegetative vigor in Comoe and Houet provinces declined during two of the last three decades. Vegetation is more vigorous than the 1981-86 historic average for this period throughout most of Burkina below 13° latitude (see Figure 1). Notable exceptions to this are the eastern two-thirds of Poni, eastern Comoe, Houet, and Tapoa Provinces.

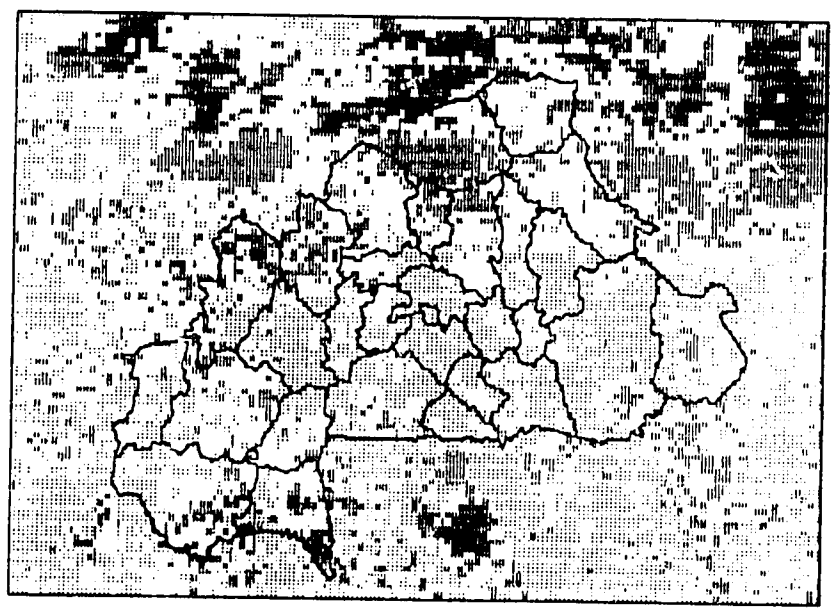
During August 11-20, vegetation conditions were generally below, or at, the 1981-86 historical minimum in southern Poni and eastern Comoe Province, and in the north of Burkina above 13° latitude, except for central Oudalan Province (see Figure 2). Low and sporadic rainfall, recorded at several stations in the north, confirms that

conditions for crop development in these areas have been poor.

Imagery shows that vegetation, during August 11-20, is as, or more, vigorous than the 1981-86 maximum throughout central Burkina, and in Mou Houn, Nahouri, and central Gourma Provinces (see Figure 3). While vegetative vigor in much of eastern Comoe Province is at the historical minimum, it is at the historical maximum in western Comoe.

Prospects for 1987 cereal production are likely to vary regionally. In the north, both the weak and sporadic rainfall and the low vegetative vigor suggest that this year's cereal harvest will be very poor. The southwest, generally a high producing area, is likely to experience an average to poor year because late plantings have pushed the harvest back to late October and November. Usually, Rainfall tapers off quickly around mid-October,

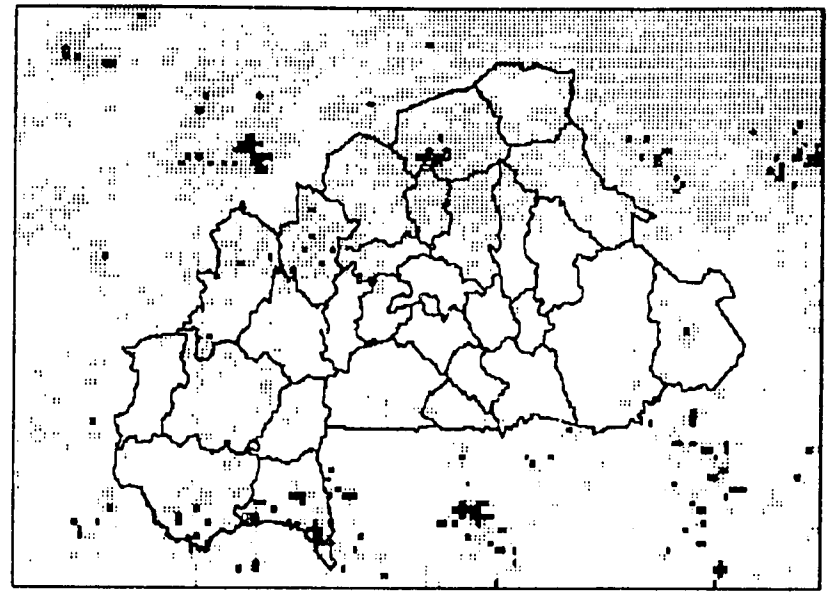
Figure 1: Comparison Between August 11-20, 1987 and the Historic (1981-86) Average for this Period



Vegetation conditions better than average
Vegetation conditions worse than average
Same as average

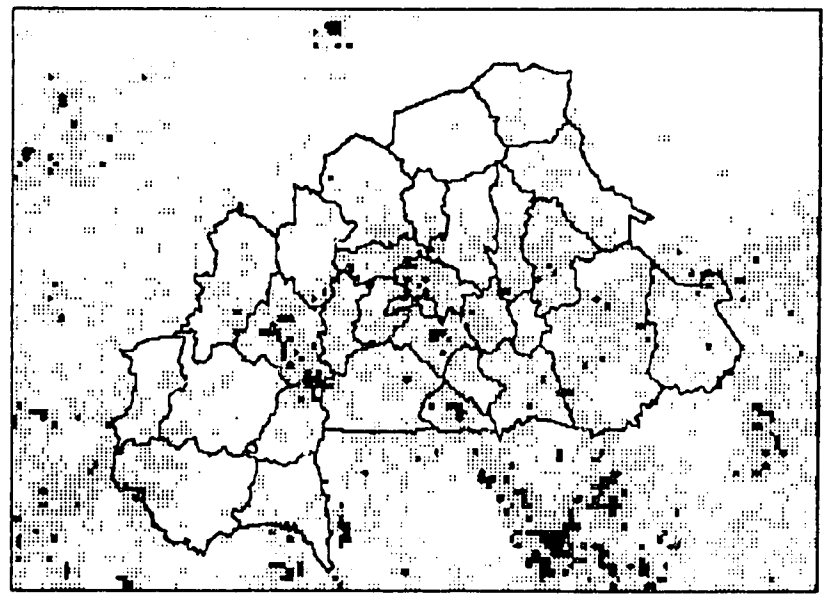
and crops may not receive adequate rain. Additionally, the decline in vegetation conditions in the southwest during two of the last three decades occurred when some cereal crops were at the heading stage of development. Rainfall and imagery suggest that central Burkina, from

Figure 2: Comparison Between August 11-20, 1987 and the Historic (1981-86) Minimum for this Period



Vegetation conditions worse than historic minimum
Vegetation conditions same as historic minimum
Above minimum

Figure 3: Comparison Between August 10-20, 1987 and the Historic (1981-86) Maximum for this Period



Vegetation Conditions better than historic maximum
Vegetation Conditions same as historic maximum
Below maximum

Mou Houn to Gourma, will experience a good harvest. However, army worms have damaged some crops, particularly in the lowlands around Dedougou (Mou Houn Province) and Fada N'Gourma (Gourma Province).

CEREAL REQUIREMENTS

Burkina's national population in 1988 will be approximately 8,459,000. 1987 net national cereal production will, therefore, have to reach approximately 1.63 million MT to meet 100% of cereal needs with domestic production[3] --only 7,600 MT less than last year's record harvest (see Appendix 1).

It is unlikely that Burkina will experience another bumper crop because the late start to the rainy season is likely to affect cereal production in the major cereal producing provinces of the southwest adversely, and because prospects are likely to be worse than average for the normally cereal deficit areas of the north[4]. Crop development throughout the central part of the country appears good, however, and, national cereal production will probably be close to average, if rains are timely and adequate through the middle of October.

Although the gap between cereal needs and cereal production has closed considerably since 1984 (in fact, 1986 was a surplus year, see Figure 4), this year's harvest is likely to fall below estimated cereal requirements because of less than optimal rainfall. The steady increase in cereal production between 1984 and 1986 was a result of both rainfall and an increase in the area harvested. Inadequate rains in 1984 resulted in an extremely poor agricultural year; the good harvest in 1985 was the result of outstanding yields because of excellent rains; and in 1986 yields remained high and area harvested increased 17% above the previous record[5].

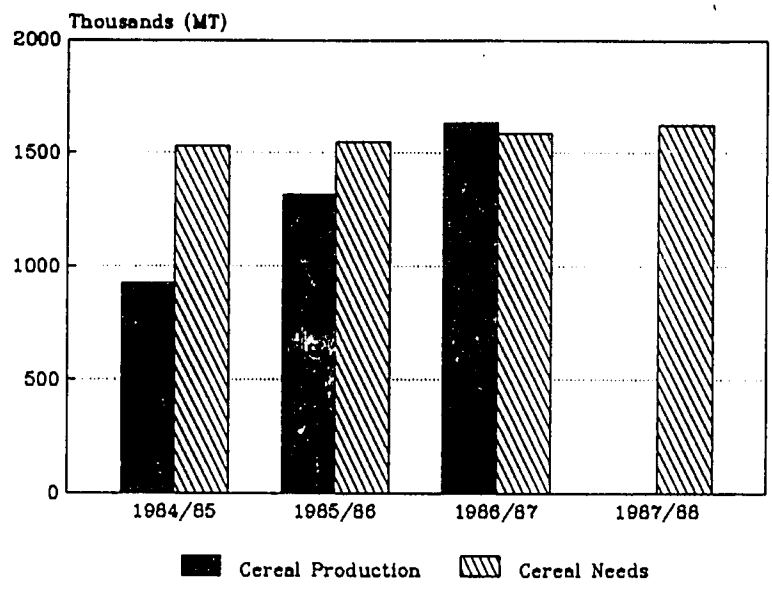
[3] For an explanation of the methodology see Appendix 1.

[4] Last year local cereal production, in the northern provinces of Bam, Sanmatenga, Namentenga, Oudalan, Seno, Soum, Sourou, and Yatenga, resulted in a 73,300 MT deficit. In the southwestern provinces of Comoe, Poni, Bougouriba, Houet, and Kenedougou, local cereal production resulted in a 32,900 MT surplus. Last year the provinces above produced 41% of Burkina's cereals.

[5] The tremendous increase in area harvested in 1986 is partially the result of the December 1985 census. In some regions, population data is included in the model for calculating area cultivated. Population projections made before the 1985 census underestimated national population by approximately 1 million people. Estimates of area cultivated made after the 1985 census would, therefore, be greater than estimates made before 1985.

While it is not yet possible to estimate the area to be harvested this year, it is unlikely that national cereal yields will be as high as they were during the last two years[6]. If area harvested this year is similar to last year's record 2.7 million hectares, yields will have to average 603 MT/HA to meet 100% of Burkina's estimated cereal requirements. This yield is 115% of the 1965-84 average and has only been exceeded four times in the past twenty-two years.

Figure 4: National Cereal Production and Requirements



Source: GOB Ministry of Agriculture

[6] According to United Nations Food and Agriculture Organization statistics, cereal yields in 1985 and 1986, at 763 MT/hectare (HA) and 701 MT/HA, respectively, were the highest ever recorded. The highest previous yield was 625 MT/HA in 1968. The 1965-84 average yield was 523 MT/HA.

Appendix 1:

Province	(1) Population				(2) Net Cereal Production (MT)			(3) Cereal Needs (MT)				(4) Cereal Surplus/(Deficit) (MT) by local production			% Cereal Needs Met by local production		
	1985	1986	1987	1988	1984	1985	1986	1985	1988	1987	1988	1985	1988	1987	1985	1986	1987
BAM	164,263	165,137	166,898	168,678	15,951	28,184	38,488	31,538	31,706	32,044	32,386	(15,587)	(3,522)	6,444	51	89	120
BAZEGA	306,976	310,661	318,165	325,851	47,954	68,989	79,672	58,939	59,647	61,088	62,563	(10,988)	9,342	18,584	82	116	130
BOUGOURIBA	221,522	223,291	226,873	230,512	37,542	49,584	48,189	42,532	42,872	43,560	44,258	(4,990)	6,712	4,629	89	116	111
BOULGOU	403,358	408,201	418,061	428,159	38,233	88,628	96,489	77,445	78,374	80,268	82,207	(39,212)	8,253	16,221	50	111	120
BOULKIEMDE	363,594	365,851	370,407	375,019	40,567	67,974	64,720	69,810	70,243	71,118	72,004	(29,243)	(2,270)	(6,398)	59	97	91
COMOE	250,510	254,078	261,368	268,868	63,419	68,162	68,208	48,098	48,783	50,183	51,623	15,321	19,378	16,025	131	142	132
GANZOURGOU	196,006	198,184	202,612	207,140	17,376	39,494	56,530	37,633	38,051	38,902	39,771	(20,257)	1,442	17,629	46	104	145
GNAGNA	229,249	232,515	239,188	246,049	6,219	47,818	51,019	44,016	44,643	45,924	47,241	(37,797)	3,176	5,095	14	109	111
GOURMA	294,123	298,313	306,872	315,677	29,084	43,225	91,168	56,472	57,276	58,919	60,610	(27,388)	(14,051)	32,248	52	75	155
HOUET	585,031	595,466	616,899	639,102	74,573	89,137	133,895	112,326	114,330	118,445	122,708	(37,753)	(25,193)	15,450	66	78	113
KADIOGO	459,138	473,147	502,461	533,592	18,155	4,497	8,244	88,154	90,844	96,473	102,450	(69,999)	(86,347)	(88,228)	21	5	9
KENEDOUGOU	139,722	141,399	144,815	148,313	32,442	33,988	41,602	26,827	27,149	27,804	28,476	5,615	6,837	13,797	122	125	150
KOSSI	330,413	334,675	343,366	352,282	54,039	72,773	86,003	63,439	64,258	65,926	67,638	(9,401)	8,515	20,077	85	113	130
KOURITENGA	197,027	199,216	203,688	208,219	21,719	29,695	31,271	37,829	38,250	39,104	39,978	(16,110)	(8,555)	(7,833)	57	76	80
MOUHOUN	289,213	292,944	300,551	308,356	57,804	66,224	75,556	55,529	56,245	57,706	59,204	2,275	9,978	17,850	104	118	131
NAHOURI	105,273	106,490	108,986	111,499	13,398	15,351	16,895	20,212	20,446	20,921	21,408	(6,815)	(5,095)	(4,027)	67	75	81
NAMENTENGA	198,798	200,032	202,523	205,045	22,507	13,200	32,723	38,169	38,406	38,884	39,389	(15,662)	(25,206)	(6,157)	59	34	84
OUBRITENGA	303,229	305,111	308,911	312,758	31,390	60,530	60,842	58,220	58,581	59,311	60,049	(26,830)	1,949	1,531	54	104	103
OUDALAN	105,715	107,031	109,[illegible]	112,463	765	10,354	10,244	20,297	20,550	21,065	21,593	(19,532)	(10,196)	(10,821)	4	50	49
PASSORE	225,115	225,912	227,516	229,130	38,317	47,679	65,752	43,222	43,375	43,683	43,993	(6,905)	4,304	22,069	84	110	151
PONI	234,501	238,374	240,165	244,017	39,316	44,931	49,751	45,024	45,384	46,112	46,851	(5,708)	(453)	3,639	88	99	108
SANGUIE	218,289	219,644	222,379	225,148	20,789	39,479	47,898	41,911	42,172	42,697	43,228	(21,122)	(2,693)	5,201	50	94	112
SANMATENGA	368,365	371,307	377,263	383,314	49,325	57,318	73,590	70,726	71,291	72,434	73,596	(21,401)	(13,973)	1,155	69	80	102
SENO	230,043	232,908	238,745	244,728	9,690	31,558	24,977	44,158	44,718	45,839	46,988	(34,478)	(13,160)	(20,862)	22	71	54
SISSILI	246,844	250,803	258,913	267,285	22,964	33,527	41,701	47,394	48,154	49,711	51,319	(24,430)	(14,627)	(8,010)	49	70	84
SOUM	190,464	192,836	197,668	202,622	15,045	9,013	19,120	36,569	37,024	37,952	38,903	(21,524)	(28,012)	(18,832)	41	25	50
SOUROU	267,770	271,224	278,267	285,493	30,903	49,766	56,300	51,412	52,075	53,427	54,815	(20,508)	(2,309)	2,872	60	96	105
TAPOA	159,121	161,388	166,018	170,781	25,792	28,464	53,871	30,551	30,988	31,875	32,790	(4,760)	(2,522)	21,996	85	91	169
YATENGA	537,205	539,108	542,934	546,787	24,902	51,408	77,128	103,143	103,509	104,243	104,983	(78,242)	(52,101)	(27,116)	24	50	74
ZOUNDWEOGO	155,142	156,658	159,734	162,871	30,874	26,625	32,028	29,787	30,078	30,689	31,271	1,088	(3,453)	1,359	104	88	104
TOTAL OR AVERAGE	7,976,019	8,069,906	8,261,918	8,459,759	929,051	1,315,571	1,631,876	1,531,396	1,549,422	1,586,288	1,624,274	(602,345)	(233,851)	45,588	63	87	105

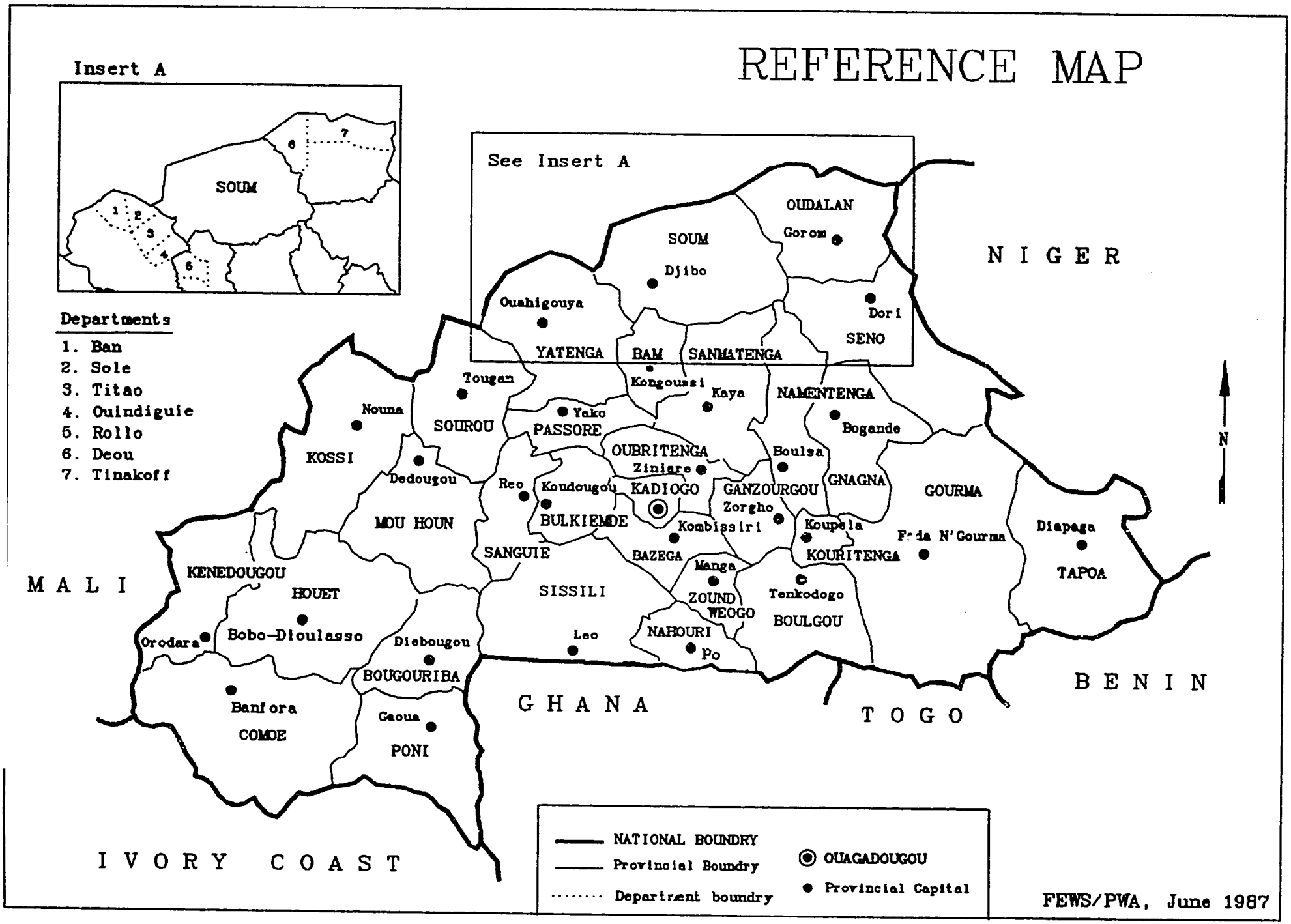
1) 1985 population estimates are from the GOB National Institute of Statistics and Demography, December 1985 Census. Projections are made to June of each year as it is approximately halfway between the harvest of the coming year and the harvest of the previous year. This provides a means to calculate average national and provincial consumption for an agricultural year.

2) Net cereal production is calculated by deducting 15% from gross millet, sorghum, and maize production, and by deducting 50% from gross rice production to account for milling and waste loss, seed and feed. Figures have been obtained from the GOB Ministry of Agriculture.

3) Cereal needs are FEWS estimates based on USAID/Burkina consumption estimates of 192 kg/person/year in sorghum equivalents. Sorghum equivalents are calculated based on caloric content: Sorghum=3052 calories, Millet=3052 calories, Maize=3167 calories, and Rice=3687 calories.

4) Cereal surplus/deficit in a given year is dependent upon cereal needs in that year and the net production of the previous year (e.g. 1985 surplus/deficit= 1985 cereal needs - 1984 production).

REFERENCE MAP



FEWS/PWA, June 1987

ACKNOWLEDGEMENTS

This is the fifteenth in a series of monthly country reports issued by the Famine Early Warning System (FEWS) on Burkina. These reports are designed to provide decisionmakers with current information and analysis on existing and potential nutritional emergency situations Each situation identified is described in terms of geographical extent, the number of people involved, or at-risk, and the proximate causes insofar as they have been discerned. Information sources are cited in the text. Information has, whenever possible, been presented in the form of quantified data. When quantified data do not exist, qualitative data are used.

Use of the term "at-risk" to identify vulnerable populations is problematical 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, 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 process underlying the deteriorating situation is highlighted by the FEWS effort, hopefully with enough specificity and forewarning to permit alternative intervention strategies to be examined and implemented. Food assistance strategies are key to famine avoidance. Other types of intervention, however, 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 *a priori* relationship exists between numbers of persons at-risk and the quantity of food assistance that may be needed. This is because famines are the culmination of slow-onset disaster processes which can be extremely complex.

The food needs of individual populations at-risk depend upon when in the disaster process they are identified, and the extent of the cumulative impact on the individuals concerned. Furthermore, the amount of food assistance required, whether from internal or external sources, depends upon a great number of considerations. Thus the food needs estimates presented periodically in FEWS reports should not be interpreted to mean food aid needs, (e.g., as under PL 480 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), National Oceanic and Atmospheric Administration's National Environment Satellite, Data, and Information Service's Assessment and Information Services Center, NOAA/AISC, the Cooperative Institute for Applied Meteorology, and USAID/Burkina; the Government of Burkina (GOB) Drought Commission; the GOB National Meteorological Office; the GOB Ministry of Agriculture; and the multi-donor funded Agro-Hydro-Meteorological Center in Niger (AGRHYMET).

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