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(52) file

18 OCT 1984

MEMORANDUM FOR: (See Distribution List)

SUBJECT: Afghanistan: Preliminary 1984 Crop Assessment of Selected Areas [redacted] 25X1

1. The attached memorandum is a preliminary 1984 crop assessment of three areas in Afghanistan. These regions include the dry land agriculture in the northern plains region, and the irrigated areas of the Panjsher Valley and Herat Province, the sites of recent heavy military activity. [redacted] 25X1

2. A second, more comprehensive report on the 1984 Afghan grain crop will be forthcoming. The second report will also address food distribution. [redacted] 25X1

3. This report is based on analysis of satellite imagery and meteorological data. It was produced by [redacted] 25X1
[redacted] the Agricultural Assessments Branch, Strategic 25X1
Resources Division, Office of Global Issues. [redacted] 25X1

4. Comments and questions are welcome and may be addressed to the Chief, Agricultural Assessments Branch, OGI [redacted] 25X1
[redacted] 25X1

[redacted] 25X1

Robert M. Gates
Deputy Director for Intelligence

Attachment:
Afghanistan: Preliminary 1984
Crop Assessment of Selected Areas
GI M 84-10179, October 1984 [redacted] 25X1

NGA REVIEW COMPLETED 25X1

[redacted]

[redacted] 25X1

SUBJECT: Afghanistan: Preliminary 1984 Crop Assessment of Selected Areas [redacted] 25X1

OGI/SRD/AAB [redacted] (12 October 1984) 25X1

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[redacted] 25X1

Central Intelligence Agency

Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

15 October 1984

Afghanistan: Preliminary 1984 Crop Assessment of Selected Areas

Summary

A preliminary assessment of three crop areas in Afghanistan (the northern plains, the Panjsher Valley, and Herat Province) indicates that this year's grain crop has suffered damage from adverse weather and that military operations have not had a significant effect on production except in the Panjsher Valley. Based on analysis of satellite imagery and meteorological data, we estimate that drought conditions in the northern plains--Afghanistan's principal dry land farming region--caused a 30 percent downturn in grain production there. Fighting in the Panjsher Valley--which has already experienced a major population exodus--has either destroyed or led to the abandonment of about 75 percent of the grainfields in that region. Grain output in Herat was virtually unaffected by the heavy military activity, and is estimated to be about the same as in 1983. Together, these three areas account for roughly a quarter of the annual grain harvest. [redacted]

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This memorandum was prepared by [redacted]
Agricultural Assessment Branch, Strategic Resources Division, Office of Global Issues. Comments may be directed to [redacted]
Chief, Strategic Resources Division

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Afghanistan: Preliminary 1984 Crop Assessment of Selected Areas

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Background

Afghanistan contains approximately 8 million hectares of arable land, less than half of which is cultivated due to limited supplies of water. Some 3.3 million hectares of the arable land are irrigated, but because of fallowing practices, only about three-fourths of this area is cropped each year. Irrigated land produces approximately 85 percent of the country's food and industrial crops. Dry land crops occupy about 900,000 hectares and are concentrated mainly in the foothills of the northern plains region.

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Grain crops occupy nearly 90 percent of the total cropped area, including nearly all the dry land farms. Wheat, mostly winter wheat, takes up 60 percent of the area sown to grain. Yields are low, averaging only about 16 centners[1] per hectare on irrigated land and about five to six centners on dry land. By comparison, Soviet farmers in neighboring Central Asian Republics obtained an average of 24 centners per hectare of winter wheat on irrigated land and 10 centners on non-irrigated land during the 1976-80 period. Irrigated crops depend primarily on river flow from the annual snow melt for moisture supplies while dry land farming depends on the amount of precipitation that falls during the critical February through April period. Irrigated crops tend to produce stable yields as long as there is sufficient snowfall to maintain irrigation supplies.

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Historically, most serious food shortages have resulted from drought-induced crop shortfalls in the dry land agricultural regions. Drought not only reduces grain production drastically, but also desiccates the grazing pastures used by the nomadic herdsmen who make up approximately 10 percent of the total population. When this occurs the farmers and herdsmen face possible starvation because they typically reside in remote regions with poor transportation and food distribution systems. Indeed, previous food aid has usually gone to the cities first even though the major need was in the remote countryside areas.

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1984 Weather Patterns

Topography and climate impose severe limitations on agriculture. The climate is arid continental, characterized by hot, dry summers and cold winters. All precipitation occurs from November through April. Available meteorological data for the

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[1] A centner equals 0.1 metric tons.

current crop season--although generally sparse and incomplete--indicates that there was sufficient snowfall last winter in Afghanistan to ensure adequate irrigation supplies. In the northern plains region, however--where virtually all of the non-irrigated crops are grown--rainfall during the critical February - April period was less than 50% of normal. Indeed, rain occurred only on 17 days compared to the average of 35 days. 25X1

Crop Assessment of Selected Areas

Northern Plains. Analysis of satellite imagery taken during the June - July harvest period revealed major drought damage to most of the dry land crops here. Compared with 1983, we estimate that grain yields in the western portion of the region--in the vicinity of Meymaneh--fell by nearly two-thirds, while those in the east--near Qonduz and Taloqan--were reduced by about one-third. In the central portion of the region--south of Mazar-e Sharif--yields are likely to be similar to last year. As a result, we estimate overall dry land grain yields this year to be nearly 30 percent smaller than the slightly above average yields estimated for 1983. A drop of this magnitude would pose a threat of serious food shortages in the hardest hit areas. 25X1

Our assessment relies solely on an imagery-based comparison of the number of post-harvest straw shocks in dryland grainfields in 1984 and 1983. Because of the direct relationship between the amount of grain harvested and the straw left in fields, this methology provides a reliable indication of relative differences in grain yields from one year to the next.[2] A total of five areas of dry land farming were compared (see table). For each area and year, the number of shocks were counted within several harvested fields, and adjustments were then made for differences in the scale of the imagery. 25X1

Panjsher Valley. Satellite imagery taken from May through September 1984 shows that Soviet and Afghan military operations caused the destruction or abandonment of about 75 percent of the grainfields in the valley. Such losses will have little impact on total Afghan grain output this year because the valley is only a minor grain producing region. Even so, they almost certainly will be devastating to the people that remain in the valley. Since 1979, more than half of the population has fled the area because of repeated Soviet attacks, according to several reliable sources. 25X1

Some two-thirds of the damage is estimated to be a direct result of the fighting in the valley. What appeared to be

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[2] In the past, State Department personnel have used a similar method to estimate Afghanistan's grain yields while travelling on the ground. 25X1

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deliberate burning of grainfields--both before and after harvest--was observed throughout the area. Considerable damage was also caused by armored vehicle trackage, construction of military bivouac areas, bomb blasts, and artillery shelling. The heavy military activity also lead to sizeable abandonment as many villagers appeared to have fled the valley. Post-harvest grain shocks that were observed on early August imagery had not yet been removed by September. Normally, shocks are removed within a few days after harvest in order to prevent yield reductions.

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Herat Province. Imagery analysis of straw shocks in Herat indicates little, if any, change in grain production between 1983 and 1984. A reduction in the amount of irrigation water available from the Harirud River probably was offset by a slight expansion in the area sown to grain this year. Despite heavy military activity in the province, there was no evidence of deliberate crop burning or destruction of irrigation systems. Damage caused by armored vehicle tracks, bomb craters, and artillery shells is estimated at less than one percent of the crop areas observed.

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Table 1

Afghanistan: Grain Shock Analysis for Five Areas of Dry Land Farming in the Northern Plains Region, 1984 and 1983

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Area	Map Location	% Change from 1983
1. Meymaneh	35-55N 064-50E	-64
2. Sar-e Pol	36-15N 066-15E	-18
3. Boyni Qara	36-15N 066-50E	+ 4
4. Qonduz	36-40N 068-50E	-32
5. Taloqan	36-45N 069-30E	-31
	Average	-28

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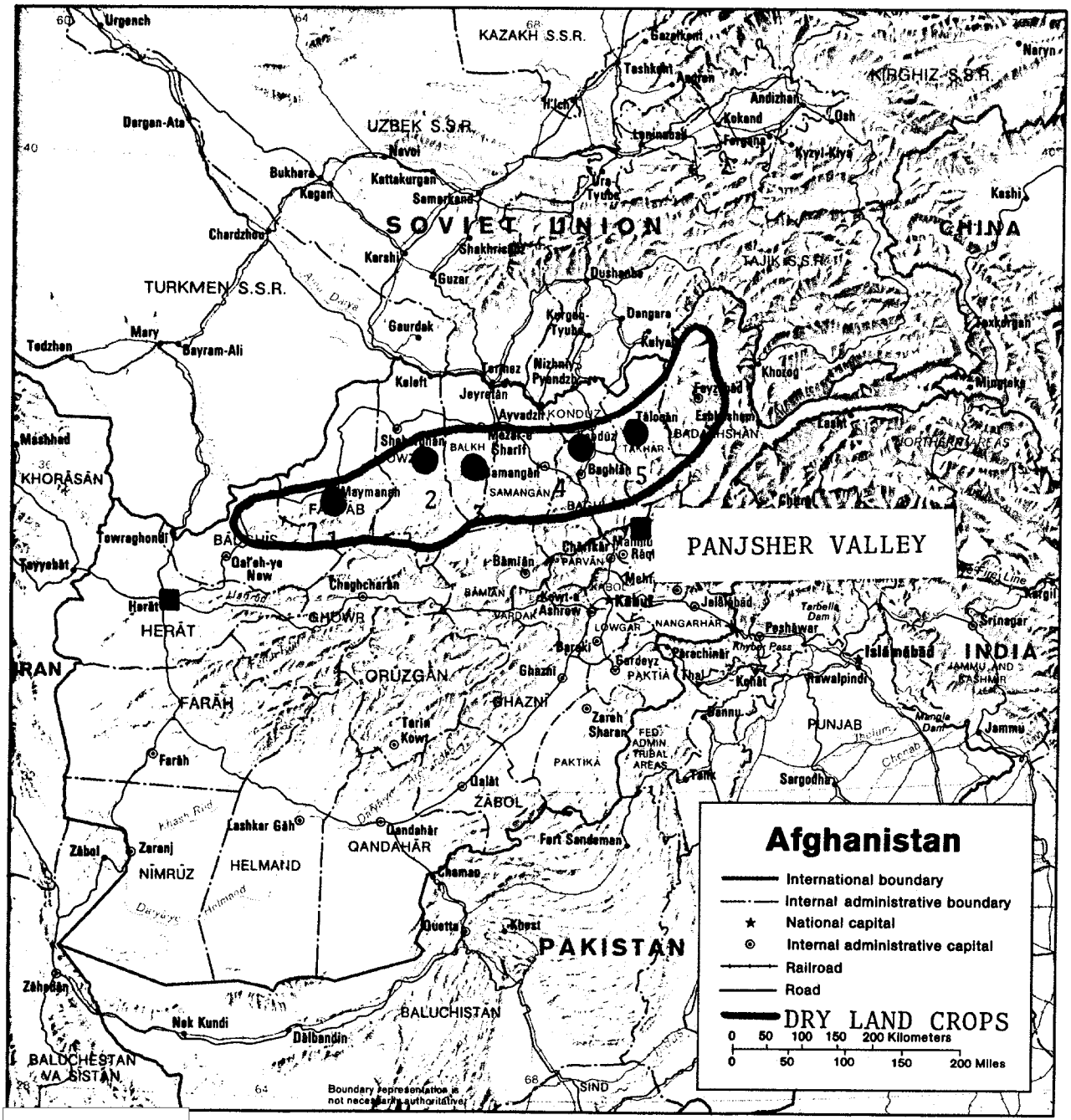

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