



National
Foreign
Assessment
Center

~~Secret~~
NOFORN

Impact of the Soviet Occupation on Afghanistan's Agriculture

An Intelligence Assessment

*6 March
1981*

Approved for Release

~~Secret~~

FEB 2001



National
Foreign
Assessment
Center

~~SECRET~~
NOFORN

Impact of the Soviet Occupation on Afghanistan's Agriculture (U)

An Intelligence Assessment

*Information available as of 6 March 1981
has been used in the preparation of this report.*

~~Secret~~
~~NOFORN~~

Impact of the Soviet Occupation on Afghanistan's Agriculture (U)

Key Judgments

Contrary to some reports, the presence of Soviet troops in Afghanistan since December 1979 appears to have had little overall impact on Afghan agricultural activity. Indeed, in large part because of generally favorable weather, the 1980 harvest is believed to have been relatively good, certainly better than the poor 1979 crop.

The few observed disruptions to the usual farming activities were an unavoidable consequence of military actions rather than a deliberate attempt by Soviet authorities to limit the production of food. There is no evidence to suggest that the Soviets are pursuing a scorched-earth policy in dealing with the Afghan insurgents, or that diversion of manpower to the insurgency has had a significant impact on agricultural output.

While both rural and urban food needs were generally met in 1980, some cities experienced periodic and at times severe shortages of some basic commodities. Such shortages, however, resulted mainly from the poor 1979 crop and from food distribution problems caused by the insurgents rather than from any deliberate Soviet disruption of normal agricultural activities.

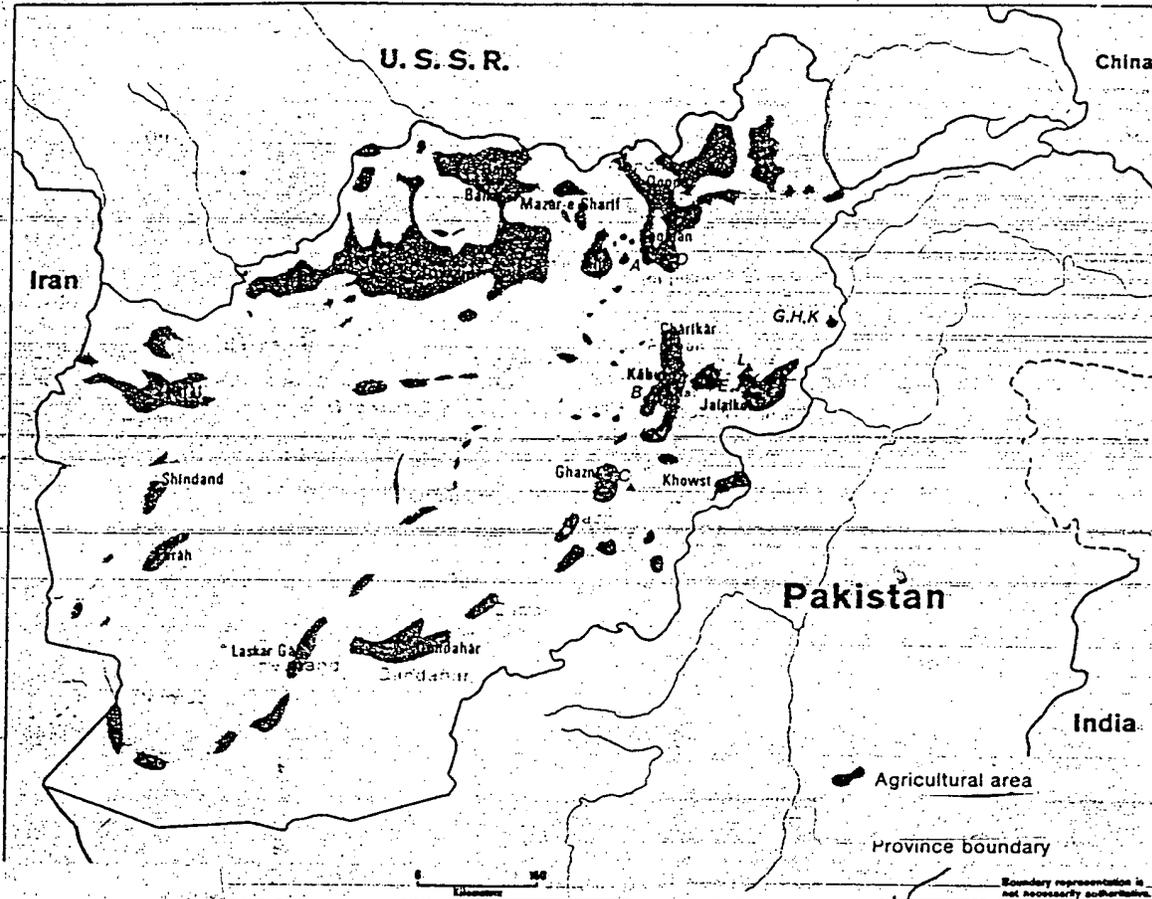
Agriculture remains vulnerable to deliberate Soviet efforts to limit the activity of the insurgents by denying them food supplies. Any such efforts would, however, likely be unsuccessful because of the nature of Afghanistan's agriculture and the insurgents' close ties with the rural population. To starve the insurgents would in effect mean starving out much of the general population. As yet there is no indication that the USSR intends to pursue such a course. On the contrary, the Soviets are taking measures to bolster agricultural output—sending fertilizer, wheat and cotton seeds, agricultural machinery, and technical advisers to Afghanistan. Barring a major change in Soviet policy, then, weather conditions and the availability of agricultural labor will be the primary factors determining the size of the 1981 harvest.

Contents

	<i>Page</i>
Key Judgments	iii
Agriculture in Afghanistan	1
The Setting	1
Role of Agriculture in the Economy	1
Land Ownership	4
Crops	4
Livestock Production	7
Distribution of Agricultural Commodities	7
Impact of the Soviet Occupation	7
Agricultural Performance in 1980	9
The 1980 Grain Crop	9
Availability of Food Supplies	12
Outlook	14

Secret
NOFORN

Afghanistan: Principal Agricultural Areas



Impact of the Soviet Occupation on Afghanistan's Agriculture (U)

Since the Soviet invasion of Afghanistan in late December 1979, there have been periodic reports of Soviet troops deliberately destroying crops and livestock on a widespread basis in an attempt to deny food to the insurgents and to provide an object lesson to the Afghan farmers who support them.

This report presents the results of that analysis against a background of traditional Afghan agricultural practices and examines the 1980 food supply situation.

Agriculture in Afghanistan

The Setting. Most of Afghanistan—a country of mountains, desert, and forest—is unsuitable for agriculture. Steep mountains and narrow, deeply incised valleys abound, and large areas of the country are without appreciable soil cover, weathered rocks forming much of the surface. Soils are poorly structured, alkaline, high in calcium, and low in organic matter, nitrogen, and phosphorous. The more productive soils are found only in the valleys and basins. Less than 1.5 percent of the total land area, about 8 million hectares, is classified as arable. Because of a shortage of water a large number of fields are left fallow each year, and only about 4 million hectares are cultivated annually. (U)

The arid continental climate of Afghanistan—characterized by hot, dry summers (June-October), wet and often harsh winters, and wide diurnal fluctuations in temperature—poses a major agricultural constraint. Agriculture depends heavily on irrigation from the few permanently flowing rivers, snow and ice melt, and underground water reserves. In the late summer, irrigation water comes mainly from melting glaciers and permanent snow fields in the mountains. (U)

Precipitation varies considerably from year to year and with elevation; in most areas of the country it is neither adequate nor reliable enough to support extensive

dryland farming. Most of it falls during the colder months of December through April, the greatest amount in March. Above 1,500 meters precipitation is mostly in the form of snow. High summer rates of evaporation are intensified by strong persistent winds which blow daily from June through September. (U)

The central mountain range, the Hindu Kush, covers nearly two-thirds of the country and divides the northern slopes and plains from the southern deserts and plateaus. Within these regions is a variety of agricultural activities—subsistence hillside farming in the mountains, dryland farming in the north, and irrigated operations in the valleys and basins.

Role of Agriculture in the Economy. Agriculture is dominant in Afghanistan's economy, employing roughly three quarters of the working population and accounting for more than 60 percent of the gross domestic product. It is largely of a subsistence nature. Off-farm inputs are insignificant: little use is made of chemical fertilizer or pesticides, and farming operations are nonmechanized, with men and draft animals providing the basic power needs. (U)

The agricultural sector can fill most of the country's food requirements in a year with normal precipitation. Wheat, however, is imported every year to supplement supplies for the military, civil servants, and public institutions. The amount imported depends on the level of domestic production. Imports averaged 160,000 tons during the mid-1970s and rose to an estimated 400,000 tons in 1979.

Afghanistan's agricultural trade balance during most of the 1970s has shown a surplus. Agricultural products—fruits and nuts, Karakul sheepskins, raw cotton, and wool—account for the major share of total export earnings. In addition to the legal trade, an unknown quantity of agricultural products is smuggled across Afghanistan's borders, particularly live sheep and skins into Iran. (U)

~~Secret~~

~~Secret~~

In exchange for these products as well as natural gas, Afghanistan imports capital goods, oil, refined sugar, and wheat from the USSR, traditionally its dominant trading partner.

1980 the Soviet Union accounted for approximately 60 percent of Afghanistan's total foreign trade, up from the 30- to 40-percent share average during the 1970s. A large portion of the remainder was conducted with East European countries.

The bulk of foreign assistance provided to Afghanistan since 1950 has been directed toward the development of water resource projects—the expansion and improvement of irrigation and flood control systems, and the construction of hydroelectric power facilities. The most extensive development has occurred along the Helmand River and its tributary the Arghandab, the Qonduz River and its tributary the Khanabad, and the Kabul River in the area of Jalalkot in Nangarhar Province. The primary purposes of these projects have been to increase production of crops for export and to support small textile and food processing industries. The main contributors of financial and technical aid have been the Soviet Union and the United States followed by the World Bank, West Germany, and China. (U)

Land Ownership. Most farms in Afghanistan are very small, partly because of the tradition of dividing land among sons and partly because a small number of landowners hold a disproportionately large share of the total cultivated area. About 40 percent of the 1.2 million farm families own less than 0.5 hectare, and about 80 percent own less than 4 hectares. The production from such small holdings rarely exceeds the needs of the farmer's extended family—usually three generations under one roof—plus a small surplus that can be sold for the cash needed to buy tea, sugar, kerosene, shoes, and cloth. (U)

More than 40 percent of the total cultivated area is in the hands of large landowners numbering only 2 percent or so of all farmers. These large holdings are worked by hired labor, tenant farmers, or sharecroppers, often kinsmen of the landlord. Although the large farms sometimes produce a marketable surplus, most of the production is consumed on the farm or loaned to the tenants in return for future considerations, in an Afghan form of indenture. In

addition to land in individual ownership, some land is held by clans, tribal groups, and villages—with families sharing rights to water, animals and tools. (U)

The Afghan Government has long attempted to break up large landholdings and reduce the influence of the kinship system. All the attempts, including the much publicized land reform program announced in 1978 and dropped in 1979, have been unsuccessful for basically the same reason: the government has been unable to replace the traditional system of interdependence between tenants and landowners. Promised government loans and deliveries of seed and draft animals have been slow in coming or have never materialized. Compounding the government's difficulties in instituting land reform are the lack of precise farm boundaries, the absence of land records, the continual controversies over irrigation water rights, and the recipients' fear of reprisal for infringing upon ownership rights. Although some land has been redistributed, it usually has been poor in quality, and without adequate support from the government most farmers have eventually abandoned their new holdings. ■

Crops. Reliable crop production statistics are not available. Inadequate access to rural areas, the traditional antagonism of rural Afghans toward central authority, the propensity of the Afghan farmer to lie about his yields, and the customary bartering or smuggling of a portion of the grain crop make it virtually impossible for any Afghan government to collect accurate data on crop production. According to official Afghan data, however, total annual grain production averaged 4.3 million tons from 1976 through 1978, of which wheat totaled 2.8 million tons. The UN Food and Agriculture Organization (FAO) estimates that in 1979 drought and the government's haphazard attempts at land redistribution resulted in a 13-percent decline in total grain production, with wheat output falling by more than 20 percent (see table). (U)

Grain crops such as wheat, rice, barley, and corn account for nearly 90 percent of the total area cropped. Fruits and vegetables occupy roughly 6 percent, and industrial crops—cotton, sugar beets, and oilseeds, as well as poppies, make up the remainder. With the exception of some wheat, barley, sesame, and linseed, all of the crops are irrigated. ■

Table

Thousand Metric Tons

Afghanistan: Production of Major Crops, 1976-80*

	Average 1970-75	1976	1977	1978	Estimate 1979	Preliminary ^b 1980
Grain	2,965	4,584	4,112	4,347	3,800 ^c	4,370
Wheat	2,466	2,936	2,652	2,813	2,200	NA
Corn	728	800	760	780	750	NA
Rice	404	448	400	428	450	NA
Barley	367	400	300	326	400	NA
Cotton	35	40	54	48	38	NA
Sugar beets	76	91	97	73	120	NA
Oilseeds	45	55	55	55	55	NA
Vegetables	688	634	524	621	635	NA
Fruits	772	795	628	815	824	NA

* FAO data through 1979.

^b "According to preliminary surveys," as reported in a speech on 28 January 1981 to a seminar of provincial directors of agriculture by DRA Revolution Council Vice Chairman and Deputy Prime Minister Soltan Ali Keshmand.

^c Contrary to the FAO's 3.8-million-ton estimate for 1979, a 1979 grain crop of 4.23 million tons was implied from the 28 January speech in which it was announced that 4.37 million tons of grain were produced in the current year, "150,000 tons more than" in 1979.

This table is Unclassified.

Wheat is the staple crop in the Afghan diet. Grown in nearly all regions of Afghanistan, it accounts for 60 percent of total cropland and 60 to 65 percent of total grain production. More than half of the wheat area is irrigated, but even irrigated wheat relies heavily upon natural rainfall. Irrigated wheat is sown from late October to mid-November and harvested in June and July. From 25 to 35 percent of the previous year's irrigated area is left fallow each year. Nonirrigated wheat, sown in the spring and harvested in the fall of the same year, is grown primarily in northern Afghanistan. Typically, only 20 percent of the wheat produced comes from nonirrigated lands. Depending on seasonal moisture conditions, some 20 to 50 percent of the fields are left fallow. (U)

Rice is the second most important grain in the Afghanistan diet, accounting for about 10 percent of total grain output. It is grown principally in the north around the towns of Baghlan and Qonduz. Other major ricegrowing areas are in Herat and Nangarhar Provinces. (U)

Barley and corn, grown in many parts of the country, occupy less than 10 percent of the total crop area. Winter barley is harvested at the end of May, about two weeks before the wheat harvest begins. A nonirrigated highland variety is planted at higher elevations as a summer crop. Corn is harvested in August and September in northern Afghanistan and in October or November farther south. In areas where the number of frost-free days permit, such as the Helmand Valley, corn is planted in a double cropping system following the winter wheat harvest. (U)

Other important crops include:

- Fruits (grapes, pomegranates, apricots, apples, plums), grown in most irrigated areas.
- Vegetables, grown primarily on small plots and used for family needs and local markets.
- Cotton, grown commercially in four main regions—Qonduz and Baghlan in the northeast, Mazar-e-Sharif and Balkh in the north, Herat in the northwest, and Laskar Gah in the southwest.

- Sugar beets, grown almost exclusively in the Baghlan area; the location of the country's only sugar factory.
- Oilseeds (primarily linseed and sesame) grown under both irrigated and rain-fed conditions in many parts of the country. (U)

Livestock Production. Livestock production in Afghanistan accounts for approximately 10 percent of the gross domestic product and contributes about 25 percent of the country's export earnings. Almost all of these export earnings are attributable to the sheep industry—Karakul pelts, carpets, wool, skins, and casings. In addition, mutton accounts for the major share of red meat consumption, and sheep's milk is a significant part of the diet for many families. (U)

A shortage of feed is the major constraint to increased production of animal products. Grain is seldom fed to animals, and the area sown to fodder crops is negligible. Natural pasture and crop residues are the main sources of feed. As a result, the livestock industry is particularly vulnerable to drought, with livestock inventories drawn down heavily in dry years. (U)

Nearly every rural family owns some livestock to supplement income and food supplies. Fewer than one-third of these families, however, rely upon livestock raising as their sole source of income. Sedentary farmers use livestock, primarily bullocks and donkeys, for plowing, threshing, and transportation. Other farmers practice transhumance, driving their small herds of sheep, goats, and cows to summer mountain pastures. Seminomads, who practice some farming and own larger herds, are the main producers of Karakul pelts and wool carpets. True nomads, who probably own the largest number of animals in Afghanistan, depend principally on their animals for a livelihood. Migrating long distances between summer and winter homelands, they barter animals and animal products for grain and other foods and are the main itinerant merchants and principal sources of ready cash. (U)

Distribution of Agricultural Commodities. Rural markets are poorly developed in Afghanistan. There is little surplus for sale or trade, and the vast majority of farmers and villagers are located great distances by foot from any road. The sparsity of all-weather roads means that most villages are isolated from the prin-

cipal cities, especially during the winter and spring. The nearest village bazaar serves as the collecting point for surplus grain, and usually a wealthy landlord acts as the bazaar merchant. Produce is moved from the local bazaar by animal to the closest road from where it is trucked to central markets. (U)

Marketing of domestic agricultural produce is handled by both public agencies (sugar beets and cotton) and private traders (the bulk of the cereals, livestock products, fruits, and vegetables). In the urban areas foodstuffs are marketed to the general public primarily through the many small shops in the local bazaar. The bazaar merchants purchase commodities from traders who have collected and transported agricultural products from the countryside to the city. In addition, the Afghan Government, through both domestic purchases and imports, normally provides food to public institutions and distributes wheat flour to civil servants at subsidized prices. (U)

Impact of the Soviet Occupation

the overall impact of the Soviet presence on Afghanistan's agricultural output was minimal.

- In most regions cropping operations took place on schedule. The harvest of the important winter wheat and barley crops occurred in June and July; the corn harvest began in early September. There appears to have been no significant change in total arable land use.
- There is no evidence to indicate that the Soviets are implementing even a limited scorched-earth policy in dealing with the Afghan insurgents. There are no signs of Soviet attempts to

¹The term "scorched-earth" refers to a military policy of devastating all land and buildings so as to leave nothing salvageable to the enemy. In the context of this paper the term refers not only to the destruction of crops, livestock, irrigation systems, and farm equipment and supplies, but also to deliberate interference in normal agricultural activities—plowing, sowing, and harvesting. (U)

~~Secret~~

~~Secret~~

prevent timely sowing and harvesting nor any indications of deliberate destruction of crops or livestock. Irrigation systems and reservoirs, vital to cropping operations and vulnerable to disruption, appear to be functioning normally. Agricultural operations were permitted virtually under Soviet gun barrels.

destroyed and some fields abandoned. Such destruction, however, probably occurred on a very limited scale and was generally confined to those border areas where insurgent activity has been the greatest.

• In those few instances where normal agricultural activity, it appears to have been of a secondary nature—the result of military combat and staging operations rather than a deliberate attempt to interfere with normal agricultural activities. In almost every case, once Soviet troops left the area farming operations resumed almost immediately. Only along a small segment of the Afghanistan-Pakistan border in Paktia Province, where insurgent crossings have led to more active military operations, was there a significant area of abandoned agricultural land.

Agricultural Performance in 1980
The 1980 Grain Crop.

preliminary production data indicate good 1980 grain yields in most areas. Afghanistan's principal agricultural areas shows that crop vigor levels were generally excellent throughout the season. Yields of winter grains, which normally account for about 70 percent of the yearly grain crop, were probably at least average. Lodging in this instance an indicator of good yields.

Harvest in June and July revealed large amounts of grain in threshing areas. For the summer-grown crops, mainly rice and corn, the dense, uniform growth suggests that yields of these crops were above average.

• In many areas the Soviet military authorities apparently had taken steps to avoid any disruption of agricultural activities. Encampments of any significant size were generally located on nonagricultural land. In most instances where agricultural land was used, the area lost was minimal. No fire zones (cleared perimeters several hundred meters wide) surrounding military camps have been observed. Even military camps located in orchards and vineyards left most trees and vines undisturbed. Movement of military vehicles not directly engaged in combat operations generally was confined to roads.

The good yields in 1980 resulted in large part from the favorable weather that prevailed for most of the crop season. Heavier-than-normal snowfall during the winter formed a good snowpack in most areas, providing a source of irrigation water for the dry spring and summer months. Normal to above-normal snowfall and rainfall in the early spring further increased soil moisture levels. In addition, late spring and early summer temperatures, slightly cooler than normal, limited moisture losses from evaporation and fostered the growth of the grain crops. (U)

• In the fall of 1980 normal preparations were being made for the winter grains, which will be harvested in 1981. Tilling and sowing operations appeared to have taken place as usual. There is no evidence to indicate that large areas of cropland were left abandoned because of direct military activity or a shortage of farm labor.

There is some uncertainty regarding the size of the area harvested. If it was smaller than usual, total output might have been below average despite good

While the Soviets have not been pursuing a scorched-earth policy on a widespread basis, this is not to say there have been no attempts made to deny insurgents access to food supplies. Undoubtedly some crops and livestock have been

¹ According to a speech by DRA Revolution Council Vice Chairman and Deputy Prime Minister Soltan 'Ali Keshtmand at a seminar of provincial directors of agriculture on 28 January, preliminary surveys indicate that 4.37 million tons of grain were produced in 1980, "150,000 tons more than" in 1979 and very near the average of recent years. Production of potatoes, fruits, grapes, and vegetables also reportedly increased over 1979 levels. The planned targets for cotton and sugar beets were reportedly not met. (U)

² Lodging describes a condition resulting when rain and wind bend or break grain stalks and form a flattened or tangled mass that is difficult to harvest. It generally occurs during the later stages of crop development—when the grains are tallest and weighted down with mature heads—and when plant growth has been especially lush.

~~Secret~~

~~Secret~~

~~Secret~~

11

~~Secret~~

yields

a large percentage of fields may not have been sown last year because of direct military intervention or a shortage of farm labor.⁴ A thorough examination of Afghanistan's agricultural areas, however, has failed to substantiate these reports.

There was no appreciable change in land use during the 1980 crop season. The few official reports have been ambiguous.⁵ Furthermore, it is ques-

⁴ _____ estimates of sown acreage by the FAO, as well as unofficial USDA estimates, reflect "below-normal" plantings of crops in 1980. (U)

⁵ In February 1980, it was reported that of a total of 3.8 million hectares of land "ready for cultivation" in the period 21 March 1979 through 20 March 1980 (the Muslim year 1358) only 3.5 million hectares were cultivated, a difference of about 8 percent. If, as we believe, and preliminary data (footnote 2) now seem to indicate, the decline occurred only in the spring of 1979, production in 1980 would not have been affected. If, however, the decline took place in the fall of 1979 when winter grains were being planted for harvest in 1980, production in 1980 would have been reduced. (U)

tionable whether Afghan officials in Kabul are in a position to make accurate statements about the countrywide agricultural situation.

Availability of Food Supplies: Despite the numerous accounts in the Western press of food shortages in rural Afghanistan, the good crop conditions

that rural food needs were generally met in 1980. Even in those areas where heavy fighting damaged some crops, the effects of a crop shortfall would likely be less pronounced than in the urban areas. In poor crop years farmers often keep—rather than sell—their grain and are able to substitute other grains for wheat, or increase the amount of fruit, nuts, and vegetables in their diet.⁶

While food supplies appeared for the most part to have been adequate in most urban areas in 1980, reports indicate that there were periodic and at times severe

~~Secret~~

~~Secret~~

shortages of many basic commodities during the first half of the year, particularly in the capital city of Kabul. Such shortages, however, are believed to have been a result of the 1979 crop shortfall or insurgent activity rather than of any direct Soviet disruption of agricultural activities. (The disruption of normal supply lines by the insurgents was not limited to agricultural products; many nonfood products—gasoline, firewood, cement—were also prevented from reaching the cities.) Food supplies improved noticeably as the harvest of some 1980 crops, particularly winter wheat, began in June and July. Prices of wheat, flour, and local rice, up greatly during the first half of the year, declined in August in Kabul as the new crops began to appear in the central market.

To supplement food supplies, Afghanistan is believed to have imported 400,000 to 500,000 tons of wheat in 1980, most of it supplied by the Soviet Union. Much of the imported grain was probably for use in the Kabul area by Afghan civil servants and military forces.

Outlook

The USSR has not been pursuing a scorched-earth policy on a widespread basis. Moreover, Soviet authorities are taking measures to boost agricultural output—sending fertilizer, improved varieties of wheat and cotton seed, agricultural machinery, and technical advisers to Afghanistan.

Although Afghan agriculture remains vulnerable to Soviet military activity—the destruction of crops, livestock, irrigation systems, and the prevention of normal cropping operations—it is most unlikely that the USSR will change course and adopt a policy of deliberate destruction. Such an objective would require a monumental effort by the Soviets and, in the end, would probably be self-defeating. In a country where over 80 percent of the population is rural and where the food distribution system is so decentralized, limiting insurgent activity by cutting off food supplies would be virtually impossible. To police fully the numerous small fields scattered throughout the mountainous terrain would require tremendous expenditures of time

and manpower. Because of the insurgents' ties to the general rural population, any effective large-scale Soviet attempt to starve out the insurgents would starve much of Afghanistan's rural population.

Any impact of the Soviet invasion on Afghanistan's agriculture is more likely to be the result of a shortage of farm labor caused by the outflow of refugees than the result of deliberate Soviet attempts to limit agricultural output. Afghanistan's agricultural economy is highly labor intensive and therefore vulnerable to shortages of farm labor. The traditionally labor-intensive farming methods and double cropping practices normally result in seasonal shortages of agricultural labor at planting time in the spring, at the time of the winter grain harvest in mid-July, and again in the fall when the summer crops are harvested and the fields are prepared for the sowing of winter grains.

However, to suggest that diversion of manpower to the insurgency or the exodus of an estimated 1.5 million refugees to Pakistan and Iran has yet had a major impact on agricultural operations.⁷ This may be explained by reports that many refugees have filtered back across the borders and rebels have come down from the hills to plant and harvest their crops. Should the outflow of refugees from rural areas continue unabated and labor shortages become more extensive,

however, farm labor problems could become an important constraint on Afghanistan's food production in 1981.

Barring a major change in Soviet policy and in the availability of agricultural labor, weather conditions will be the most important factor determining the 1981

⁷ Preliminary data announced in late January 1981 (footnote 2) support this judgment. In the fall of 1980 winter wheat was reportedly sown on 1.53 million hectares, compared to a 1971-76 average of roughly 1.30 million hectares. (U)

~~Secret~~

harvest in Afghanistan. Since last fall, precipitation has been near-normal but below the very favorable amounts received during the 1979/80 season. With the period of greatest precipitation now under way (December-April), it is too early to assess the availability of water for the 1981 crops. The forecast through March 1981, however, is favorable, calling for above-average precipitation and near normal temperatures. Should such conditions prevail into the spring, the outlook for the 1981 crops would be good.

~~Secret~~