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Southwest Asia: Transportation and Processing of Opium Products Along the Afghan-Pakistani Border

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A Research Paper

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Southwest Asia: Transportation and Processing of Opium Products Along the Afghan-Pakistani Border

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A Research Paper

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Southwest Asia: Transportation and Processing of Opium Products Along the Afghan-Pakistani Border 25X1

Summary

Information available as of 1 October was used in this report.

The mountain trails crisscrossing the Afghan-Pakistani border are a key link in the Southwest Asian heroin trade, the leading source of heroin for the United States and Western Europe. These pack-animal caravan trails provide traffickers in Pakistan—where opium production has fallen during the last five years—with ready access to major opium supplies in Afghanistan, which now account for a significant portion of the region's surplus opium. 25X1 25X1

Current Government of Pakistan interdiction efforts directed against Afghan opium shipments entering the North-West Frontier Province are limited and ineffective. The principal Pakistani agency responsible for border trail interdiction, the Customs Service, lacks the manpower and the transportation and communication resources to effectively deter opium smuggling. Moreover, the Pakistani government has relied on routine inspections at customs checkpoints along major North-West Frontier Province roads as its principal deterrent to narcotics smuggling in the region, and smugglers have circumvented most checkpoints simply by taking alternate routes. Afghanistan has made little progress in controlling the production and trafficking of narcotics: the Soviets have taken only limited action against Afghan opium smugglers, and Soviet efforts to control insurgent cross-border movements have only temporarily disrupted the opium trade.

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This study identifies key smuggling routes and trail choke points, and both maps and provides a rank-order listing of the 164 cross-border routes.

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Introduction

The Golden Crescent of Southwest Asia, which includes the opium-growing areas of Iran, Afghanistan, and Pakistan (figure 1), is the world's largest source of opium. Southwest Asia emerged as a leading supplier of opium in the late 1970s, when eradication efforts in Mexico and drought in Southeast Asia decreased the availability of opium from those regions

Southwest Asian opium production was estimated at 560 to 830 metric tons in 1984.[1] Most of this opium is consumed in Iran, Afghanistan, Pakistan, and India by opium smokers and a rising number of heroin addicts. Less than 15 percent of the crop—perhaps no more than 100 tons annually—is refined into heroin, producing approximately 10 tons of injectable heroin hydrochloride. This 10 tons of injectable heroin is enough to satisfy almost all of Western Europe's illicit heroin consumption, and roughly half of the heroin demand in the United States.

Most Southwest Asian opium destined for US and European markets is grown in the border areas of northeastern Afghanistan and northwestern Pakistan. Most of this harvested opium is shipped along overland routes to wholesalers in the North-West Frontier Province (NWFP). This raw opium is mostly sold to traffickers in Pakistan for processing in nearby laboratories, predominantly centered in and around the NWFP villages of Landi Kotal, Bara, and Darra. The primary products of these labs are heroin base and injectable heroin (heroin hydrochloride) (figure 2). Most processed heroin is shipped from the NWFP by car or truck to major traffickers in Karachi and Lahore. From there it is sent—primarily via commercial airlines and ocean freighters—to markets in the Middle East, Europe, and North America. Traditional smuggling routes through Iran, Turkey, and the Mediterranean littoral are still used, but increased surveillance at ports and the search for new markets are causing traffickers to shift to other routes through India and Africa.

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During the last five years, low opium prices and government crop control measures have caused a decline in Pakistani opium production, and NWFP wholesalers have become increasingly dependent on opium grown in the neighboring Afghan provinces of Nangarhar and Konarha. Raw opium from these provinces—as well as significant amounts of heroin base—is easily smuggled into Pakistan by pack-animal caravans, along trails crossing the Afghan-Pakistani border. This report, using network modeling, identifies the key border trails and passes most heavily used for smuggling Afghanistan's 1984 export opium crop to the NWFP. It also discusses opium wholesaling and heroin processing in the region, evaluates current border trail interdiction measures, examines the impact of the Afghan insurgency on narcotics production in the Golden Crescent, and assesses the prospects for future interdiction efforts along the Afghan-Pakistani border

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Figure 1
The Golden Crescent: Poppy Cultivation Areas and Smuggling Routes

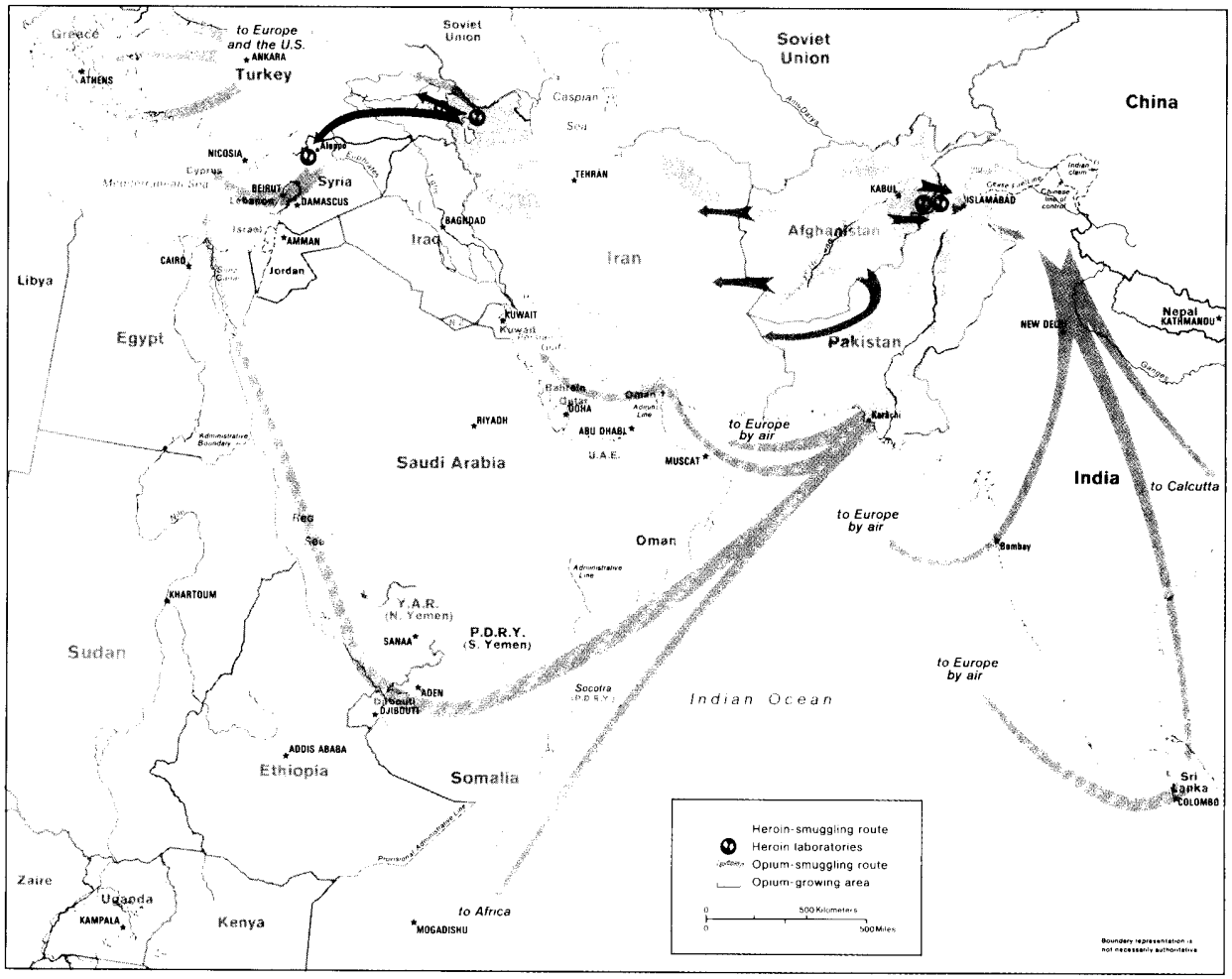

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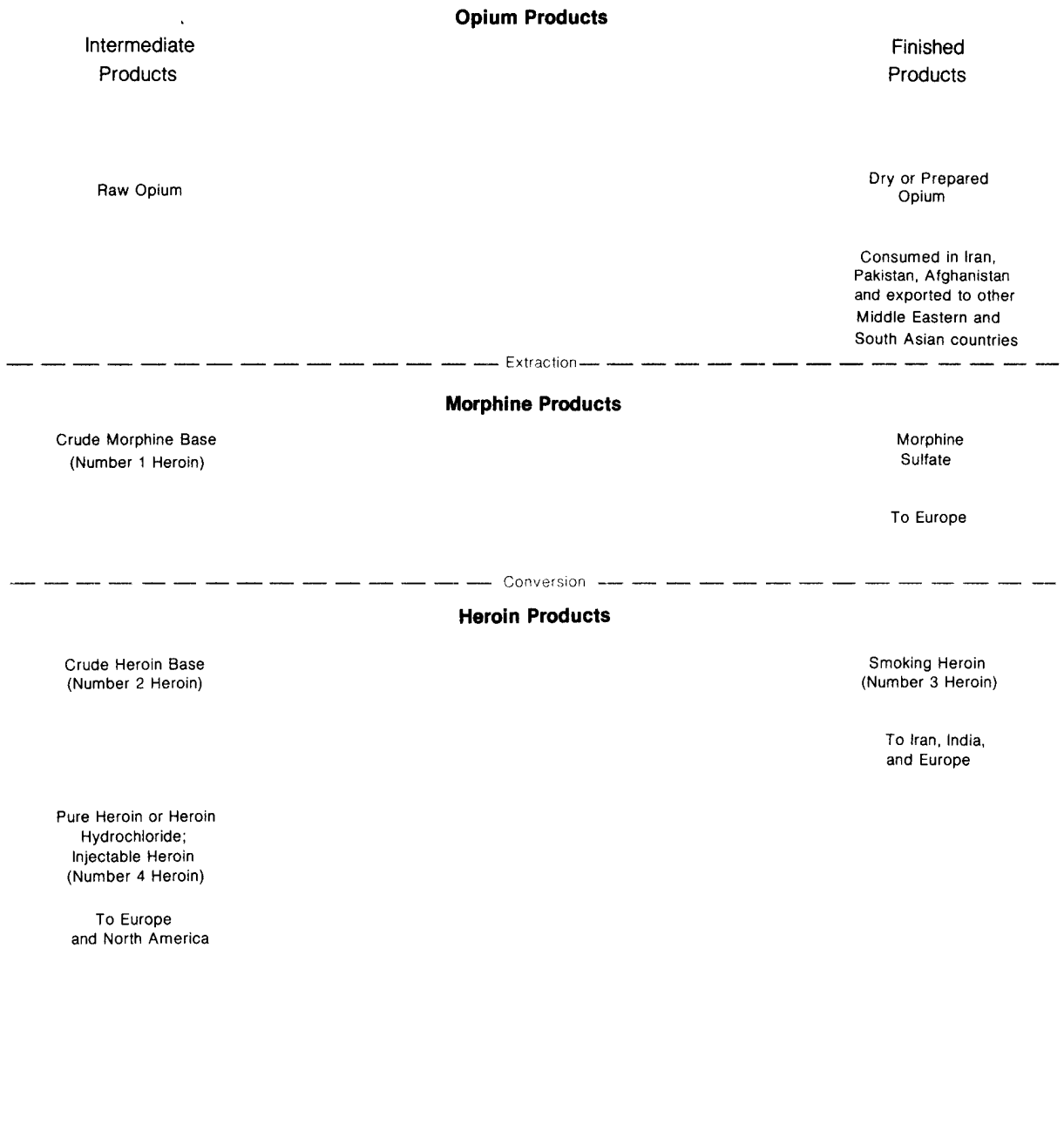
Figure 2
Opium Refining Process and Products



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Opium Production in the Afghan-Pakistani Border Region

Opium has been grown for centuries in the Golden Crescent, primarily to satisfy regional opium demand. For many tribesmen, it is their only cash crop. Production is concentrated in those areas where government control is weak. In both Afghanistan and Pakistan, the Pathans, or Pushtuns, are the major tribal group involved in opium cultivation, smuggling, wholesaling, and refining. Independent Pathan farmers typically grow opium poppies in small fields, averaging only 0.1 hectare in size (figure 3); the crop is planted from October through December, and the opium gum is harvested in April and May. Most of the opium gum produced by Pathan farmers is sold to local opium merchants, who in turn sell it to major regional wholesalers

Opium production in Pakistan peaked in 1979, when a record 700 to 800 tons of opium gum was harvested. Pakistani production has declined significantly in the 1980s, the result of a glutted opium market and a 1979 ban by the government on opium poppy cultivation. Almost all of Pakistan's opium is grown in the NWFP, and the threat of eradication appears to be forcing opium farmers to move to more remote areas.

1984 opium production in the NWFP is estimated at only 40 to 50 tons, with most cultivation occurring in Dir and Gadoon Districts and in Mohmand, Bajaur, and Malakand Agencies.

Afghanistan is a leading surplus opium producer in Southwest Asia. Field sources reported that between 1977 and 1982 production ranged between 200 and 300 tons, and that it declined only slightly after the Soviet invasion in December 1979. According to limited Drug Enforcement Admininstration (DEA) human source reporting, a record 400 to 575 tons of opium was produced in 1983.

Afghanistan's principal poppy-growing areas are in Nangarhar and Konarha Provinces, directly across the border from Pakistan's NWFP. These two provinces were responsible for approximately 50 percent of Afghanistan's total opium production in 1984.

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Pakistan's North-West Frontier Province: The Wholesale Opium Market

Opium bound for the NWFP from Afghanistan is usually transported, in vehicles or on pack animals, from the growing areas to villages near the Pakistani border. These villages—notably Towr Kham, Kama Daka, and Cobi, near the Khyber Pass—serve as staging areas where the opium is transferred to pack-animal caravans. From the villages, these caravans transport the raw opium by long-established and well-protected smuggling routes across the border into Pakistan (figure 4). Once inside Pakistan, the opium is transferred to another pack-animal caravan or to small trucks for delivery to major NWFP wholesalers. Small amounts of opium are also smuggled across the border at Towr Kham by vehicle, along the only paved highway linking northeastern Afghanistan with Pakistan's NWFP.

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Most raw opium produced in the NWFP, and most of the opium shipped to the NWFP from Afghanistan's Nangarhar and Konarha Provinces, is purchased by Pakistani opium wholesalers, who operate principally from small business establishments located in bazaars throughout the NWFP. These bazaars have long been the centers of commerce for the region, promoting trading of food and clothing as well as contraband items such as arms, ammunition, and currency. Although there are hundreds of bazaars throughout the NWFP, raw opium is sold chiefly at bazaars in the villages of Landi Kotal, Bara, and Darra.

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Most opium wholesalers in the NWFP operate independently of major trafficking organizations. According to DEA reporting, there may be more than 50 major wholesalers in Landi Kotal alone.

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Figure 4
Opium Caravan in Dry Streambed Near the Afghan-Pakistani Border, April 1982

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Opium supplies arriving from the growing areas are typically stockpiled in small warehouses near the bazaars. DEA sources report that wholesalers often have at least 4 tons of opium on hand and normally deal in quantities of 1 ton or more. The NWFP's wholesalers sell most of their supplies to local heroin refining laboratory operators, who convert the raw opium to morphine base, heroin base, or injectable heroin hydrochloride. Frequently wholesalers in the NWFP also operate refining labs.

Heroin Production in the North-West Frontier Province

Heroin refining began on a large scale in the NWFP in the early 1980s, in response to a decline in prices for raw opium and the 1979 Government of Pakistan (GOP) ban on opium poppy cultivation.[2] Despite efforts by the GOP to halt the operations of laboratories, which resulted in the surrender of processing equipment from some 41 laboratories in 1982 and 1983, heroin processing continues in the NWFP, especially in and around the villages of Landi Kotal, Bara, and Darra. Although there are no reliable estimates of the number of these labs, recent US Embassy reporting indicates that Pakistani heroin labs produced a total of some 6 tons of morphine base, heroin base, and injectable heroin in 1983. Approximately 4 tons of heroin was consumed in the United States in 1983; Western Europe's 1983 consumption is estimated at roughly 6 tons.

Most heroin labs in the NWFP process raw opium to crude heroin base, but because the profit potential of refined heroin is so much greater, we believe the number of labs converting opium to injectable heroin has increased steadily in the 1980s. Heroin labs in Pakistan are usually small and crudely constructed, and are often set up in existing buildings in outlying farm compounds (figure 5) and villages.[3] These labs are typically run by one owner with five to six helpers. Most such labs are capable of producing 6 to 10 kilograms of heroin base daily.

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During the last few years, as government enforcement in Pakistan has been stepped up, heroin labs have also been established in the Afghan countryside, where neither the government nor the Soviets exercise effective narcotics control or enforcement activities. According to long-time reliable DEA sources, at least 40 heroin labs were operating in Afghanistan's Nangarhar Province in 1983. These labs are reportedly similar in appearance and operation to Pakistani labs, and most of them produce heroin base rather than injectable heroin. We believe that heroin labs are probably also operating in Konarha Province, the other major source of Afghan opium in the border region. Most Afghan-produced heroin base is exported to the NWFP for final processing to injectable heroin; some is shipped to Iranian markets. DEA and other reports indicate that some Afghan heroin base is also sold to both Afghan insurgents and Soviet troops.

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Opium Smuggling Routes Across the Afghan-Pakistani Border

The Afghan-Pakistani border is long, mountainous, and relatively easy to cross undetected. For centuries tribal groups have routinely crossed the border between Afghanistan's Nangarhar and Konarha Provinces and Pakistan's NWFP, using a multiplicity of mountain trails. They cross the border to trade, look for work, visit relatives, and move their herd animals to winter

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grazing areas--and opium smugglers, as well as Afghan refugees and insurgents, travel across the border along the same routes. Cross-border movements in this region are difficult to monitor because of the border's great length, the large number of trails, and the rugged terrain (figures 6 and 7). The trails are typically steep and narrow, and often follow deep ravines, ridgelines, and streambeds. Trail passes are frequently blocked by snow during the winter months

Afghan narcotics smugglers can choose from a multitude of routes to move their supplies to the NWFP. A 1983 study identified about 85 major border trails connecting Afghanistan's Nangarhar and Konarha Provinces with Pakistan's NWFP.[4]

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Figure 6
Trail Across Afghan-Pakistani Border, Hindu Kush Mountains, April 1982

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Characteristics of Geographic Border Zones

Border trails in this region of Southwest Asia traverse four distinct geographic zones, comprising two mountain ranges—the Hindu Kush and the Safed Koh—and two hill environments, the Khyber Hills and the open barren hills north of the Kabul River (figure 9). Border trails in each of these zones are distinguished by several geographic characteristics (see table):

- *Hindu Kush Mountains.* Trails traversing the Hindu Kush have moderate slopes, and trail passes average 2,500 meters in altitude. The northernmost trails are often impassable between November and April due to snow cover. This zone has the most trails—73—and the most trails in relatively good condition[5]—30—of the four geographic zones in the border region.

- *Hills North of the Kabul River.* Trails in this geographic zone have gentler slopes and lower passes than trails in other zones. Most trails are open year-round, but are in poor condition.

- *Khyber Hills.* Khyber Hills trails are steeply sloped, and many wind through hills along deep ravines. This geographic zone has the most trails per kilometer—25 trails over a 52-kilometer stretch of the border.

- *Safed Koh Range.* Travel along the steeply sloped Safed Koh trails is often difficult and hazardous. Passes average 3,400 meters in altitude, and the westernmost trail passes are often blocked by snow between January and June. This geographic zone has the fewest trails, and most trails are in poor condition.

Network Analysis of Border Trails

To identify the routes most likely used to transport opium from major growing areas in Afghanistan to the distribution centers in Pakistan's NWFP, we developed a network model to assess trails in each of the four geographic border zones.[6] This model is designed to identify the routes most likely used by opium smugglers, and to estimate the relative quantities of opium crossing the border in the four different zones. Using this network model, we examined the 164 trails identified in this study to determine the major routes probably used to transport the 1984 opium harvest to Pakistan.

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For each of these 164 trails, we considered three factors: the total distance of travel from Afghan growing areas to Pakistani distribution centers; the difficulty of the trails, in terms of slope and condition; and snow coverage in the trail passes from April through September, when most opium is transported across the border

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Several assumptions are inherent in our network analysis. First, the opium-growing areas considered in this study are located in Nangarhar and Konarha Provinces; these areas are believed to account for most of the opium cultivated in eastern Afghanistan and exported to Pakistan's NWFP. Second, the villages of Landi Kotal, Bara, and Darra are assumed to be the major centers for opium distribution in the NWFP. Third, the model assumes that traffickers prefer the shortest, most easily traversed routes from the growing areas to the major opium markets.

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The factors of distance to distribution centers and trail difficulty are equally weighted in our analysis. In some instances a trafficker may have to choose between an easy but longer route and a shorter but more difficult one. The relative importance attached to distance versus difficulty is likely to vary among traffickers, but the model suggests that the set of preferred routes is not appreciably altered by changing the relative weights of these two factors.

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[5]Border trails are considered to be in good condition if they are well traveled, worn, and free of obstructions

Figure 9
Geographic Zones and Flow of Opium Across the Afghan-Pakistani Border

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Characteristics of Trails Across the Afghan-Pakistani Border

Geographic Zone	Length of Border (kilometers)	Number of Trails	Number of Trails (per kilometer)	Number of Trails in Good Condition	Percentage of Trails in Good Condition
Hindu Kush Mountains	163	73	.45	15	20%
Open Barren Hills North of the Kabul River	52	28	.54	9	32%
Khyber Hills	33	25	76	7	28%
Safed Koh Range	234	37	.16	3	8%

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Snow coverage is a major hindrance on border trails traversing mountain passes, and it is assumed that traffickers will not cross a snow-covered pass if an alternate route is available. This assumption has little appreciable effect on our final assessment, however, because passes that are frequently closed by snow are usually on trails judged undesirable because of their length or difficulty

To determine which of the 164 cross-border routes are most likely preferred by opium smugglers, we used our network model to assess all possible routes from the growing areas in Afganistan to the major distribution centers in Pakistan's NWFP. The paths from each growing area are weighted according to the amount of opium produced in that area, . By assigning area production weights and applying these weights to the assessment of the 164 paths—by distance to distribution centers, difficulty, and pass conditions—we established a network-model ranking of border trails, indicating which trails are most likely to carry the greatest amounts of opium from Afghanistan into the NWFP. The appendix to this report provides a rank-order listing of the 164 cross-border trails examined.

The ranking established in this network analysis reveals that most opium entering Pakistan's NWFP probably moves along trails crossing the Khyber Hills and the Safed Koh Range, both on the borders of Afghanistan's Nangarhar Province, where opium poppy cultivation is heaviest. Trails in both of these geographic border zones represent the shortest and most direct routes to the major distribution centers in the NWFP. The Khyber Hills zone has more trails per kilometer than any other border zone, and while Safed Koh trails are steep, their proximity to both growing areas and distribution centers overrides this disadvantage.

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Based on our network model, approximately 50 percent of eastern Afghanistan's 1984 export opium production probably crossed the border into Pakistan along Khyber Hills trails, while 40 percent was most likely carried on the steeper Safed Koh Range trails. The most heavily used trails are those leading from the Afghan border settlements of Towr Kham, Kama Daka, and Cobi, suggesting that these settlements are major caravan staging areas.

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Some 10 percent of opium exported to the NWFP from eastern Afghanistan probably flowed from northern Konarha Province across the Hindu Kush Mountains into Dir District in the northern NWFP. The difficulty of trails crossing the border in this area and the distance from Dir to the major distribution centers makes this region far less desirable to smugglers moving opium across the Afghan-Pakistani border. Probably less than 1 percent of eastern Afghanistan's export opium crossed the border into Pakistan along trails through the open barren hills north of the Kabul River. Although these trails are relatively easy to traverse, we believe that opium smugglers use them infrequently—as the model reveals—because they involve additional river crossings and because they are not the most direct routes from the growing areas to the opium distribution centers in the NWFP.

Impact of the Afghan Insurgency on Narcotics Production in the Golden Crescent

We estimate that Afghan opium production declined slightly immediately after the Soviet invasion in 1979. The invasion reduced the supply of local labor available for opium cultivation: a large portion of the population fled to Pakistan, and many of those who remained diverted their attention to the conflict with government forces. During the past few years, however, Afghan opium production has returned to former levels. The labor supply available for opium cultivation has stabilized as the flow of Afghan farmers from traditional opium-growing areas to Pakistan has slackened.

refugees also cross back into Afghanistan temporarily to help plant and harvest the opium crop.

Although the Soviets and the Afghan government are concerned about growing drug abuse among their troops, lack of manpower and preoccupation with the insurgency have limited their actions against opium cultivation and processing. Moreover, farmers and heroin lab operators are relatively immune to government enforcement actions, because most opium cultivation and processing occurs in areas of eastern Afghanistan that are controlled by the insurgent forces (figure 10). Opium cultivation continues even in areas occupied by the Afghan and Soviet armies, and we have observed opium poppy fields left undisturbed near Soviet military installations. 25X1

The Soviet and Afghan armies have had only an indirect impact on opium caravans traveling across the border, through their efforts to control cross-border movements by insurgents. These actions—including frequent helicopter strafing operations and the mining of border trails—have disrupted cross-border travel only temporarily. Because there are so many border trails, helicopter strafing is a hit-and-run operation, and normal travel resumes as soon as the strafing stops. Mined trails have also presented few problems for traffickers, as the insurgents have quickly learned to disarm mines, and travelers—warned by area residents—have often avoided mined trails simply by taking alternate routes. 25X1

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Afghan insurgent leaders have denied that the Mujahideen are involved in the production and trafficking of opium. 25X1

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The insurgents have not, however, interfered with opium poppy cultivation in the northeastern provinces. They have also permitted heroin labs to operate in their areas of control, and lab operators do contribute some funds to the Mujahideen cause. 25X1

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Prospects for Interdiction Along the Afghan-Pakistani Border 25X1

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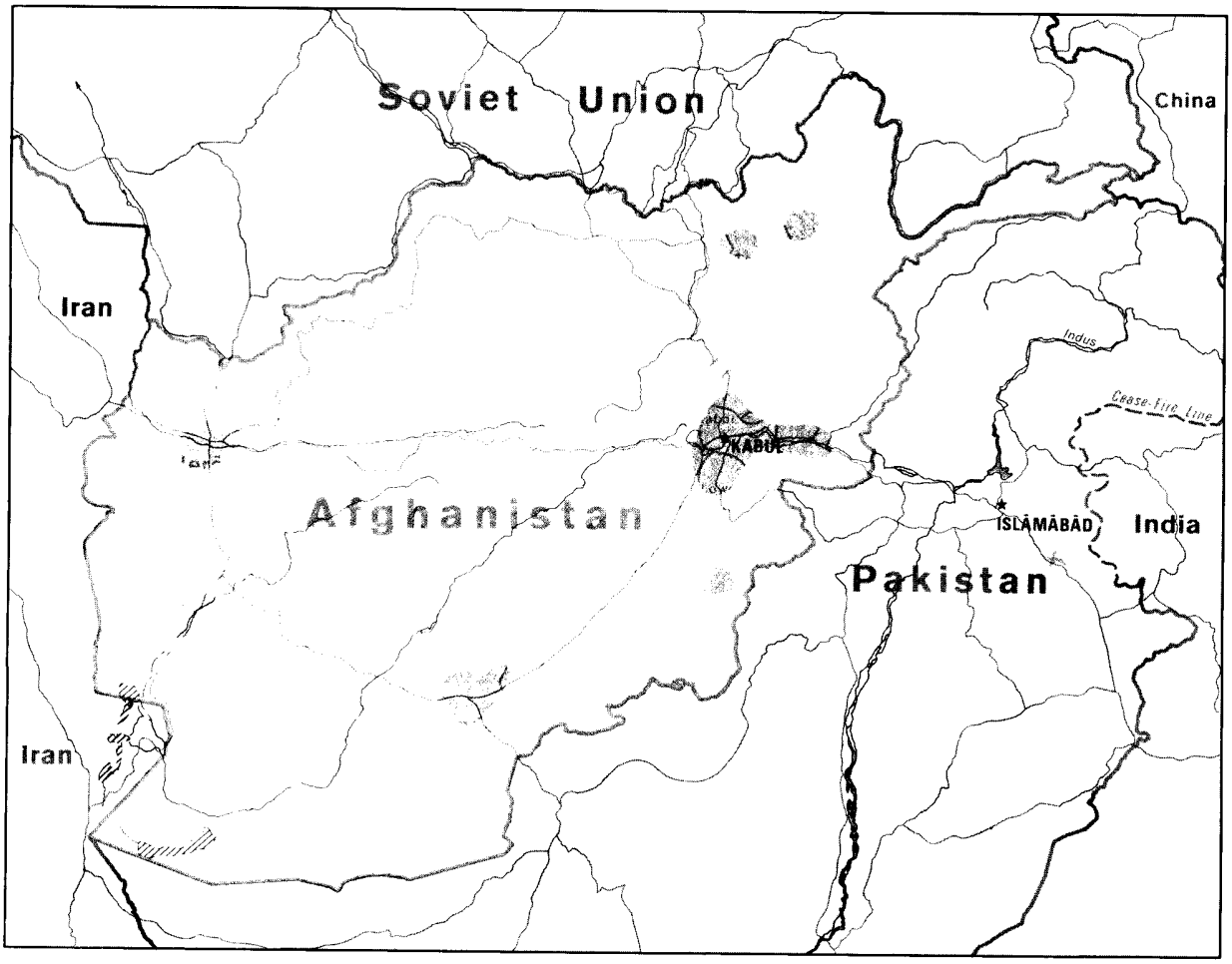
In Pakistan, the GOP has made little effort to interdict Afghan opium entering the NWFP along its northwestern border. Moreover, the principal GOP agency responsible for patrolling the border region—the Customs Service—has only 30 mobile units operating in the area, and most of these units lack the transportation and communications equipment needed for effective interdiction. 25X1

Figure 10
Afghan Insurgent and Soviet Forces in Opium-Producing Areas of Afghanistan



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Hampered by inadequate resources, the GOP has relied on routine inspections at customs checkpoints—one on the border, but most along major roads leaving the NWFP—as the principal means for narcotics interdiction in the region. However, traffickers have avoided most checkpoints simply by moving off the main roads to the many small roads and trails in the border area.

Prospects for improvement in Pakistan's interdiction effort are not good. The identification of key smuggling routes and trail choke points, as presented in this study, could aid in targeting interdiction efforts to the most heavily used smuggling routes, but we believe that the GOP is unlikely to initiate a large-scale border interdiction program in the NWFP. Such a program would require the long-term presence of a significant GOP force, and we do not believe the GOP has sufficient resources to make such a commitment. Moreover, an increase in troop presence could lead to hostilities between government forces and the autonomous tribal groups that inhabit most of the border region. The GOP is likely to avoid such a confrontation, especially given the instability of the region.

Even if the GOP were to conduct a vigorous border trail interdiction campaign, we believe its chances for stemming the flow of Afghan opium into the NFWP would be slight. As this study indicates, the sheer number of trails along the Afghan-Pakistani border represents the greatest obstacle to successful enforcement. This factor has already thwarted concerted Soviet military efforts to restrict cross-border movements by Afghan insurgents. Moreover, smuggling has been a way of life in the Golden Crescent for centuries; tolerance for smuggling is high, and traffickers are extremely adept at eluding government authorities.

Given the difficulty of border trail interdiction, the GOP may initiate indirect measures to combat the Afghan opium traffic across its borders. These measures could include arrests of known major NWFP traffickers and large-scale closings of NWFP heroin labs. However, only the sustained application of such measures over a long period of time could significantly curtail the Afghan opium trade. In the near term, Southwest Asia will probably increase its regional output of heroin, because the production of surplus opium in Afghanistan is expected to offset gains made in reducing Pakistani production. For the foreseeable future, Pakistan's NWFP will remain the center of the Southwest Asian heroin trade

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Appendix

Ranking of Narcotics Trafficking Routes Across the Afghan-Pakistani Border

Rank	Route Number[a]	Pass Number[b]	Pass Name[c]	Geographic Zone
1	38	30		Khyber Hills
2	39	31		Khyber Hills
3	62	53		Khyber Hills
4	33	27		Safed Koh Range
5	34	27		Safed Koh Range
6	43	35		Khyber Hills
7	45	35		Khyber Hills
8	36	29		Safed Koh Range
9	35	28	Cobi Kandao	Safed Koh Range
10	37	28	Cobi Kandao	Safed Koh Range
11	42	34		Khyber Hills
12	30	25	Bazar Kandao	Safed Koh Range
13	31	25	Bazar Kandao	Safed Koh Range
14	68	59		Hills north of Kabul River
15	27	23	Khandwala Kandao	Safed Koh Range
16	73	64		Hills north of Kabul River
17	74	65		Hills north of Kabul River
18	75	66		Hills north of Kabul River
19	90	81		Hindu Kush Mountains
20	94	85		Hindu Kush Mountains
21	95	86		Hindu Kush Mountains
22	32	26	Tabi Kandao	Safed Koh Range
23	28	24	Musatal Kandao	Safed Koh Range
24	29	24	Musatal Kandao	Safed Koh Range
25	40	32		Khyber Hills
26	57	48		Khyber Hills
27	70	61		Hills north of Kabul River
28	72	63		Hills north of Kabul River
29	40	32		Khyber Hills
30	61	52		Khyber Hills
31	21	17	Nang Stara Kandao	Safed Koh Range
32	24	20	Salemai Kandao	Safed Koh Range
33	25	21	Darmu Drab	Safed Koh Range
34	48	39		Khyber Hills
35	65	56		Hills north of Kabul River
36	68	59		Hills north of Kabul River
37	77	68		Hills north of Kabul River
38	78	69		Hills north of Kabul River
39	93	84		Hindu Kush Mountains
40	101	92		Hindu Kush Mountains
41	100	91		Hindu Kush Mountains
42	124	115		Hindu Kush Mountains

Ranking of Narcotics Trafficking Routes Across the Afghan-Pakistani Border (continued)

Rank	Route Number[a]	Pass Number[b]	Pass Name[c]	Geographic Zone
43	99	90		Hindu Kush Mountains
44	91	82		Hindu Kush Mountains
45	49	40		Khyber Hills
46	135	126	Ghakhai Pass	Hindu Kush Mountains
47	148	139		Hindu Kush Mountains
48	147	138	Kaga Pass	Hindu Kush Mountains
49	159	150	Tripaman Kandao	Hindu Kush Mountains
50	3	2	Gawai Tangai	Safed Koh Range
51	1	1	Kirka Tangai	Safed Koh Range
52	4	3	Zarai Khande Kandao	Safed Koh Range
53	2	1	Kirka Tangai	Safed Koh Range
54	19	15		Safed Koh Range
55	71	62		Hills north of Kabul River
56	120	111		Hindu Kush Mountains
57	108	99	Chartana Pass	Hindu Kush Mountains
58	146	137	Mukha Pass	Hindu Kush Mountains
59	18	14	Tora Tigga Kandao	Safed Koh Range
60	157	148		Hindu Kush Mountains
61	155	146		Hindu Kush Mountains
62	158	149	Loegram Pass	Hindu Kush Mountains
63	160	151	Binshai Kandao	Hindu Kush Mountains
64	123	114		Hindu Kush Mountains
65	144	135		Hindu Kush Mountains
66	116	107		Hindu Kush Mountains
67	119	110		Hindu Kush Mountains
68	145	136		Hindu Kush Mountains
69	112	103		Hindu Kush Mountains
70	122	113		Hindu Kush Mountains
71	110	101		Hindu Kush Mountains
72	5	4		Safed Koh Range
73	6	5	Spinkaii Raghai	
74	7	6	Rishak Kandao	Safed Koh Range
75	8	7		Safed Koh Range
76	9	8	Shah Hussaini Kandao	Safed Koh Range
77	10	9		Safed Koh Range
78	11	10		Safed Koh Range
79	12	11	Agam Pass	Safed Koh Range
80	13	11	Agam Pass	Safed Koh Range
81	14	12	Oghaz Kandao	Safed Koh Range
82	15	12	Oghaz Kandao	Safed Koh Range
83	16	12	Oghaz Kandao	Safed Koh Range
84	17	13	Kot Mohmand Kandao	Safed Koh Range
85	20	16	Pekhe Kandao	Safed Koh Range

(continued)

Rank	Route Number[a]	Pass Number[b]	Pass Name[c]	Geographic Zone
86	22	18	Bajur Kandao	Safed Koh Range
87	23	19	Brekh Muhammed Kandao	Safed Koh Range
88	26	22	Chawatkhai Kandao	Safed Koh Range
89	41	33		Khyber Hills
90	44	36		Khyber Hills
91	46	37		Khyber Hills
92	47	38		Khyber Hills
93	50	41		Khyber Hills
94	51	42		Khyber Hills
95	52	43		Khyber Hills
96	53	44		Khyber Hills
97	54	45		Khyber Hills
98	55	46		Khyber Hills
99	56	47		Khyber Hills
100	58	49		Khyber Hills
101	59	50		Khyber Hills
102	60	51		Khyber Hills
103	63	54		Hills north of Kabul River
104	64	55		Hills north of Kabul River
105	66	57		Hills north of Kabul River
106	67	58		Hills north of Kabul River
107	69	60		Hills north of Kabul River
108	70	61		Hills north of Kabul River
109	71	62		Hills north of Kabul River
110	72	63		Hills north of Kabul River
111	76	67		Hills north of Kabul River
112	79	70		Hills north of Kabul River
113	80	71		Hills north of Kabul River
114	81	72		Hills north of Kabul River
115	82	73		Hills north of Kabul River
116	83	74		Hills north of Kabul River
117	84	75		Hills north of Kabul River
118	85	76		Hills north of Kabul River
119	86	77		Hills north of Kabul River
120	87	78		Hindu Kush Mountains
121	88	79		Hindu Kush Mountains
122	89	80		Hindu Kush Mountains
123	92	83		Hindu Kush Mountains
124	96	87		Hindu Kush Mountains
125	97	88		Hindu Kush Mountains
126	98	89	Shaunkrai Pass	Hindu Kush Mountains
127	102	93		Hindu Kush Mountains
128	103	94	Goraprai Pass	Hindu Kush Mountains
129	104	95		Hindu Kush Mountains
130	105	96	Spina Tsuka Pass	Hindu Kush Mountains
131	106	97		Hindu Kush Mountains

Ranking of Narcotics Trafficking Routes Across the Afghan-Pakistani Border (continued)

Rank	Route Number[a]	Pass Number[b]	Pass Name[c]	Geographic Zone	Rank	Route Number[a]	Pass Number[b]	Pass Name[c]	Geographic Zone
132	107	98	Pishio Kandao	Hindu Kush Mountains	149	133	124		Hindu Kush Mountains
133	109	100		Hindu Kush Mountains	150	134	125		Hindu Kush Mountains
134	111	102		Hindu Kush Mountains	151	136	127		Hindu Kush Mountains
135	113	104		Hindu Kush Mountains	152	137	128		Hindu Kush Mountains
136	114	105	Nawa Pass	Hindu Kush Mountains	153	138	129		Hindu Kush Mountains
137	115	106		Hindu Kush Mountains	154	139	130		Hindu Kush Mountains
138	117	108		Hindu Kush Mountains	155	140	131		Hindu Kush Mountains
139	118	109		Hindu Kush Mountains	156	141	132		Hindu Kush Mountains
140	121	112		Hindu Kush Mountains	157	142	133		Hindu Kush Mountains
141	125	116		Hindu Kush Mountains	158	143	134		Hindu Kush Mountains
142	126	117		Hindu Kush Mountains	159	153	144		Hindu Kush Mountains
143	127	118		Hindu Kush Mountains	160	154	145	Latwatai Pass	Hindu Kush Mountains
144	128	119		Hindu Kush Mountains	161	155	146		Hindu Kush Mountains
145	129	120		Hindu Kush Mountains	162	156	147		Hindu Kush Mountains
146	130	121		Hindu Kush Mountains	163	157	148		Hindu Kush Mountains
147	131	122		Hindu Kush Mountains	164	158	149	Loegram Pass	Hindu Kush Mountains
148	132	123		Hindu Kush Mountains					

[a]A route number was assigned to each of the 164 trails examined in our network analysis. Route numbers are keyed to trails shown in figure 8.

[b]The 164 cross-border trails traverse a total of 151 mountain and hill passes. Some of these passes are crossed by more than one trail. Pass numbers are keyed to figure 8.

[c]Most passes along the Afghan-Pakistani border do not have recorded names, and many are actually long ridges, deep ravines, or dry streambeds. Some major routes are known by the names of the rivers whose beds they follow across the border.

25X1

Figure 8
Trails and Passes Along the Afghan-Pakistani Border