

Central Intelligence Agency



Washington, D.C. 20505

15 DEC 1983

MEMORANDUM FOR: Ms. Jozset Hudson-Ziegler
Southeast Asia Program Manager
Bureau of International Narcotic Matters
Department of State

FROM: [Redacted]
Chief, International Security Issues Division,
Office of Global Issues

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SUBJECT: Opium Production in The Golden Triangle in
1983 [Redacted]

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1. Earlier this year, we estimated that 1983 opium production in the Golden Triangle would be between 615 and 665 metric tons. Analysis of information received since then indicates that production was most likely near the lower end of that range. The attached memorandum examines the 1983 opium production estimate in Southeast Asia--prepared using methodologies developed by Project UPHIGH--in greater detail. [Redacted]

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2. The memorandum was prepared by [Redacted]
International Security Issues Division, Office of Global
Issues. [Redacted]

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3. Questions and comments are welcome and may be directed to the Chief, Strategic Narcotics Branch, OGI, [Redacted]

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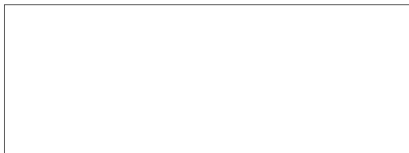
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Attachment:
Opium Production in The Golden Triangle,
1983, GI M 83-10250, December 1983 [Redacted]

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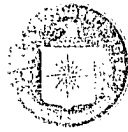
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Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

5 December 1983

Opium Production in The Golden Triangle in 1983

Summary

We believe, based on application of the UPHIGH methodology, that opium production in the countries of the Golden Triangle of Southeast Asia for the 1983 crop season was somewhat more than 600 tons, down 13 percent from the 1982 harvest of 700 tons. Despite the decline in production, however, we expect that opium supplies will be adequate to meet market demand. Burma, the region's leading producer, is estimated to have produced approximately 550 tons, some 50 tons below the 1982 production. Thailand produced about 37 tons, down from last year by about 20 tons as dry weather during the planting season in November 1982 led to a 25 percent reduction in sown area. We estimate that Laos produced about 20 tons of opium this year, down from 50 tons in 1982. [redacted]

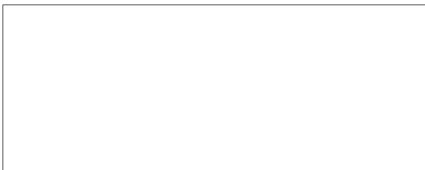
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This paper was prepared by [redacted] International Security Issues Division, Office of Global Issues. Information available as of 5 December was used in this report. Comments and queries should be addressed to the Chief, Strategic Narcotics Branch, [redacted]

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GI M 83-10250
December 1983



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Opium Production in the Golden Triangle in 1983Applying the UPHIGH Methodology

The opium production estimates for Burma, Thailand, and Laos for the 1983 crop season are based on a combination of satellite and aircraft imagery and field reporting. Because cultivation practices and poppy signatures on imagery are alike in these countries, the basic UPHIGH methodology can be applied to all the major growing areas of the Golden Triangle. The major opium growing area of the Golden Triangle is the Shan State in Burma; lesser amounts are grown in northern Thailand and north central Laos. Imagery-derived data are used to calculate both the total number of poppy fields and the average field size. The total area under cultivation multiplied by average yield figures, generally provided by Embassy reporting, results in a value for total production. Production estimates are calculated separately for areas of intense cultivation and areas of less intense cultivation. [redacted]

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Several variables enter the estimation process at each step and affect the accuracy of the final production estimate. First, the estimate is sensitive to the size of the growing region imaged. The level of confidence for the estimate rises as larger shares of the growing area are imaged although statistical adjustments are necessary to compensate for the poppy fields that are missed because of their location adjacent to villages and legitimate crops. Second, the yield per hectare can vary according to environmental conditions from a low of 3 kilograms per hectare to a high of 30 kilograms per hectare; Embassy reporting indicates that an average yield is about 10 kilograms per hectare. [redacted]

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Burma - The Region's Leading Opium Producer

We believe, based on analysis of a combination of satellite and aircraft imagery, that some 550 tons of opium were produced in Burma in 1983. The aircraft imagery was obtained from the Burmese Government which acquired aerial photography of some of the poppy-producing areas in the northern Shan State. Analysis of the imagery obtained by the Burmese Air Force (BAF) indicates that there has been some expansion in the total area under cultivation in Burma, but the new poppy fields were in generally less productive areas which tended to lower the average opium gum yield. The major areas of production span a region encompassing most of the Shan Plateau from the eastern Kachin State along the China Border south nearly 600 miles into the Kayah State, with the most intensive area of cultivation east of the Salween river and north of Kentung. Much of this area remains beyond the control of the central government and is virtually immune to antinarcotics measures. [redacted] hilltribe

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Crop Estimate for Burma

	<u>Intensive Cultivation</u>	<u>Less Intensive Cultivation</u>	<u>Total</u>
Possible Growing Area (hectares)	4,147,431	14,252,569	18,400,000
Growing Area Imaged (hectares)	1,884,670	4,060,000	7,264,670
Estimated Number of Fields	89,129	16,255	105,384
Total Cultivated Area (hectares)	46,383	8,542	55,175*
Total Harvest** (metric tons)	467	85	552

*Based on our analysis and survey, we estimate that Burma's opium growing region contains some 55,175 hectares plus or minus 11,500 hectares at the 67 percent confidence level.

**An average yield value of 10 kilograms per hectare was used to estimate opium production.

cultivators in these areas are encouraged to grow opium poppies by insurgent groups and other opium buyers who contract for the harvest well in advance of actual planting. [redacted]

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The BAF imagery was the only current data for northeastern Burma for the 1983 harvest¹. We estimate that the Burmese surveyed approximately 400,000 hectares in the Shan State and acquired photography of 54,000 hectares or 13.5 percent of the area surveyed. Analyzing this imagery we found approximately 9,800 fields that contained opium poppy in various stages of growth, representing 4,900 hectares of active poppy fields. The average field size observed was 0.52 hectares--based on photo measurements of a sample of 100 fields in the Shan State--and is consistent with the value of 0.5 hectares calculated in previous years. Scaling this number upward to include major growing areas in Burma that were not covered by the Burmese survey results in an estimate of 38,000 hectares that contained opium poppy--about two-thirds of the total acreage estimated for the previous growing season. Similar processes were employed in our review of satellite imagery. Satellite operations in mid-to late-October provided the basic coverage, but cloud cover precluded assessment of some 60 percent of the imaged area. [redacted]

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Thailand-Opium Production Drops in 1983

We estimate, based on analysis of satellite imagery, Thai Office of Narcotics Control Board (ONCB) overflights, and survey data that the 1983 opium crop in Thailand was about 37 tons. Satellite imagery acquired between late October 1982 and January 1983 reveals fields with good plant density and a minimum of problems. Some 80 percent of the major growing region in northern Thailand was imaged and reviewed. A total of 3,700 hectares were estimated to be under cultivation. The UPHIGH methodology was used to arrive at a production estimate of 37 tons. [redacted]

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The ONCB conducted multiple overflights in northern Thailand early in 1983. According to field reports, the Thai surveyed about 80 to 90 percent of the major poppy growing area in Thailand during January. A 24 percent decrease in the cultivated

¹The Burmese flew nine sorties in late February and early March against 28 targets in the northeastern Shan State; exposing 51 rolls of 35mm Kodacolor II film. Their survey covered only known poppy fields and although specific flight lines are not available, we received photo logs which denoted the general areas imaged. Deteriorating weather conditions and haze necessitated termination of the mission on 4 March 1983. Nevertheless, the Burmese imagery serves as surrogate ground truth to establish opium poppy signatures for use with imagery from reconnaissance systems. [redacted]

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Crop Estimate For Thailand

	<u>Intensive Cultivation</u>	<u>Less Intensive Cultivation</u>	<u>Total</u>
Possible Growing Area (hectares)	2,282,707	3,145,481	5,428,188
Growing Area Imaged (hectares)	1,640,412	2,731,181	4,371,593
Estimated Number of Fields	5,556	1,532	7,088
Total Cultivated Area (hectares)	2,889	796	3,686*
Total Harvest** (metric tons)	29	8	37

*Based on our analysis and survey, we estimate that Thailand's opium growing region contains some 3,686 hectares plus or minus 500 hectares at the 67 percent confidence level.

**An average yield value of 10 kilograms per hectare was used to estimate opium production.

[redacted]

area observed--7,500 hectares in 1982 to 5,700 hectares in 1983--was reported by the ONCB. The largest decrease was in Chiang Mai Province where opium poppy cultivation reportedly declined some 40 percent from 1982. According to field reporting, the reduction in area planted was the result of the increased use of substitute crops by hilltribe poppy cultivators, a phenomenon that probably resulted from the low prices for raw opium at the time of planting and the threat of eradication. [redacted]

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Laos-Opium Production Also Lower

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We estimate opium production in Laos in 1983 was about 20 tons. Analysis of satellite imagery covering approximately 80 percent of the opium growing region reveals the greatest concentration of poppy cultivation is in central northern Laos--particularly in Phongsali and Louangphranbang Provinces--with lesser concentrations in Louang Namtha and Oudomsai Provinces. Approximately 2,000 hectares of opium poppy is estimated to have been planted in northern Laos during the 1983 season. We have no specific reporting regarding opium yields in Laos and have thus used yields reporting for analagous regions in Thailand. [redacted]

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Crop Estimate for Laos

	<u>Intense Cultivation</u>	<u>Less Intense Cultivation</u>	<u>Total</u>
Possible Growing Area (hectares)	2,064,598	13,635,411	15,700,000
Growing Area Imaged (hectares)	2,064,589	9,045,411	11,110,000
Estimated Number Fields	9,924	3,737	13,661
Total Cultivated Area (hectares)	1,528	575	2,103*
Total Harvest** (metric tons)	15	6	21

*Based on our analysis and survey, we estimate that Laos' opium growing region contains some 2,103 hectares plus or minus 500 hectares at the 67 percent confidence level.

**An average yield value of 10 kilograms per hectare was used to estimate opium production.

SUBJECT: Opium Production in the Golden Triangle in 1983

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OGI/ISID/NAR, [redacted] (December 1983)

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