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**GEOGRAPHIC
INTELLIGENCE
MEMORANDUM**

**CIA/RR-GM-59-2
23 September 1959**

LAOS



**CENTRAL INTELLIGENCE AGENCY
OFFICE OF RESEARCH AND REPORTS**

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Introduction

The Kingdom of Laos, a primitive and remote country, today constitutes a highly prized piece of real estate. The strategic importance of the country derives from its location -- bordering on Communist China and North Vietnam on the north and east, and having common borders with non-Communist Burma, Thailand, Cambodia, and South Vietnam. Should Laos fall to the Communist Bloc, the limits of Communist-controlled territory would be brought into direct contact with Thailand and Cambodia and would be extended to the western flank of South Vietnam. Whatever the outcome of the current situation, the same natural and cultural factors that have established the character of the current military operations will profoundly handicap the future achievement of economic and political stability in Laos.

Terrain

The terrain of Laos is predominantly rugged and mountainous with relatively level areas restricted to a few plateaus and the river plains. Northern Laos, the area north of Vientiane, consists of parts of what traditionally have been known as the West Tonkin Highland and the West Laos Highland, the boundary between them being the divide between the Mekong drainage system on the west and the drainage systems of streams flowing eastward to the Gulf of Tonkin. The province of Sam Neua (more properly called Houa Phan) lies largely within the West Tonkin Highland. Here the predominant trend of the major mountains and valleys is northwest-southeast, and egress from the eastern ends of the valleys is toward the Vietnam coast. In the West Laos Highland the major trend is north-south. In both areas, many of the mountains are steep sided, commonly reaching elevations of 3,000 to 6,000 feet and occasionally more than 8,000 feet. The intervening valleys are narrow, in many cases almost impassable gorges. Secondary ridges and valleys that branch off the main features have created an intricate network of spurs and valleys that makes movement, even on foot, very difficult. Locally, small plateaus, mainly of limestone, are bounded by precipitous scarps.

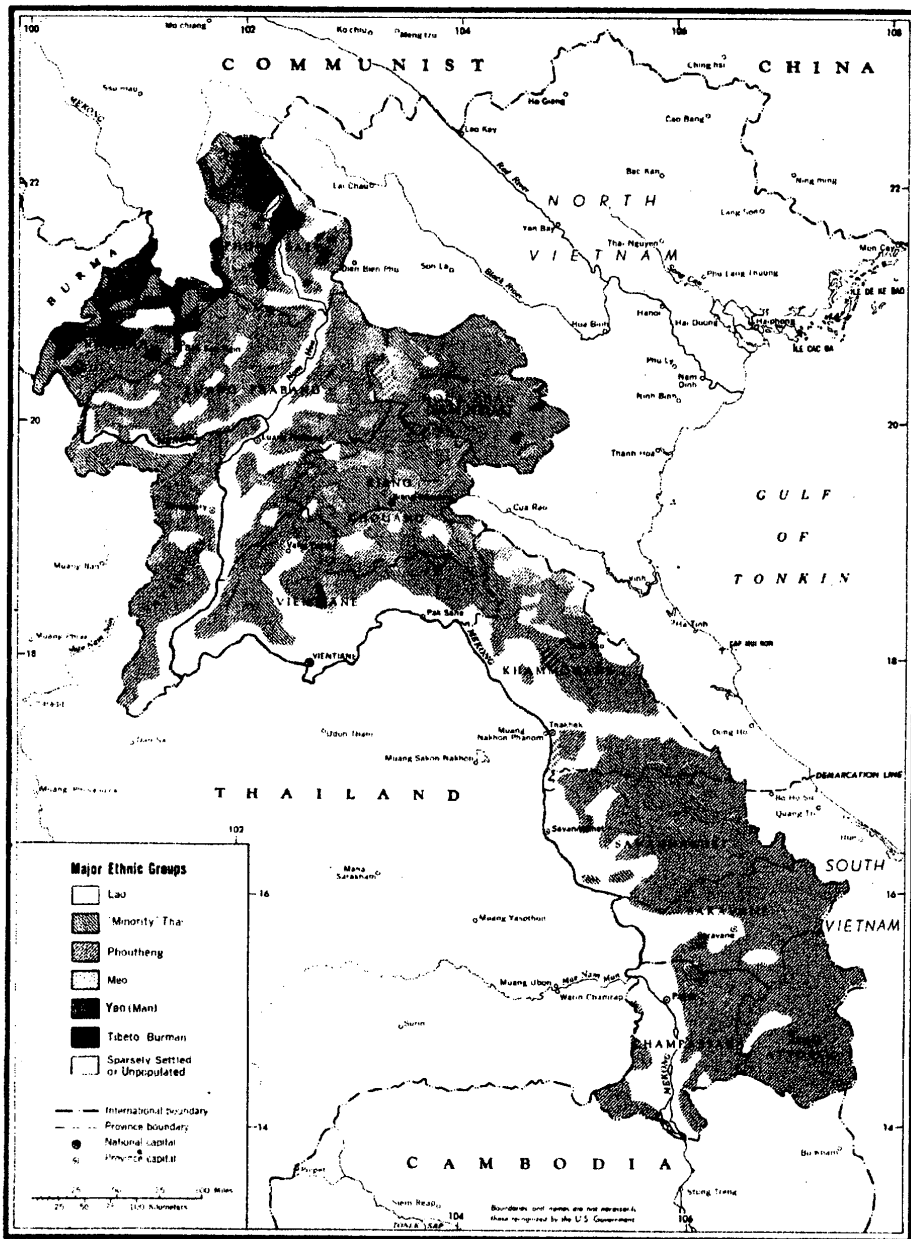
South of these northern highlands and extending in a northwest-southeast direction to the southern border of Laos is the mountainous belt known as the Annam Chain. Elevations of 8,000 feet are numerous near the northern limits; but, in the latitude of Savannakhet, only a few peaks exceed 4,000 feet. Immediately to the south, in the eastward extensions of the range, elevations again increase and some peaks exceed 8,000 feet. The main Annam range and its outliers -- such as the rugged limestone areas northeast of Thakhek -- comprise imposing obstacles to east-west traffic. Since the stream divide is near the eastern edge of the range, eastward-draining valleys are short, narrow, and steep. The westward-draining valleys within the Mekong watershed have gentler slopes and are more open. Consequently, military movement across the mountains is easier from west to east than in the opposite direction.

The chief areas of relatively level surface in Laos are found on two plateaus -- Tran Ninh and Bolovens -- and in plains areas along the Mekong River. To the southeast of Luang Prabang, roughly centered on Xieng Khouang, is the rectangular-shaped Plateau du Tran Ninh, which has been compared to a high fortification surrounded by many lines of ramparts and moats. Its military importance lies in its extensive areas of level land, which provide sites for air bases, in the midst of very rugged mountains. The plateau, at an elevation of about 3,700 feet, is made up of 3 plains separated by hills, the largest being the Plaine des Jarres. The Plateau des Bolovens is east of Pakse, has an undulating surface and an elevation of about 4,000 feet. Currently (1959), a jeep trail is being bulldozed from Dak To in South Vietnam to Attopeu in Laos which will connect with the route from Pakse that crosses the Plateau des Bolovens.

Of the river plains the most important are those centered on Savannakhet and on the capital city of Vientiane. The Savannakhet plain, an area of undulating surface between the Mekong and the Annam Chain is approximately 100 miles long by 30 miles wide. It is the site of the large military air base of Seno. The strategic route between Mukdahan, Northeast Thailand, and Quang Tri, South Vietnam, crosses the Savannakhet Plain. The plain centered on Vientiane, some 70 miles long from north to south and 20 to 40 miles wide, is almost flat, but it is largely swamp and marsh covered. The rail line from Bangkok terminates at Nong Khai, Thailand, across the river from the Vientiane area.

Climate

Laos has a monsoonal climate with pronounced wet and dry seasons and relatively uniform temperatures ranging from moderate to high. The mean annual temperature in Luang Prabang, at about 1,000 feet elevation, is 78°F. In January, freezing temperatures may occur at high elevations; and uncomfortably cold nights may be experienced at medium elevations not only in January but also during the rainy



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season. Throughout most of the country, however, the rainy season, which lasts from late May into October, is hot and humid; whereas the dry season from November into April is characterized by clear weather with many days of moderate temperature. The amount of annual rainfall varies with elevation and with exposure in relation to the moisture-laden southwest monsoonal winds. The west slopes of the Annam Chain in Laos receive very heavy rainfall. The Plateau des Bolovens, a little to the west of the main chain, receives an annual mean rainfall of 162 inches, of which 113 inches fall during the period from July through October. By contrast, Phong Saly in the north annually receives about 66 inches, of which 39 inches fall between July and October. After October, and for the duration of the dry season, the average monthly precipitation is less than 1 inch throughout much of Laos, but heavy rains associated with typhoons that strike the Vietnamese coast may occur occasionally in October or November.

During the rainy season, flooded rivers overflow their banks, the ground becomes saturated or muddy, making surface travel difficult or even impossible and curtailing air transport. Road conditions improve, and good flying weather predominates throughout most of Laos from November through March. Although

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morning fog and haze are common, particularly in the valleys, they generally dissipate by 10 A.M. By contrast, bad flying weather prevails along the Annamese coast of North Vietnam between 16° and 19°N from November to January and along all of the north Annam coast from January through April as a result of the crachin, a season of frequent and persistent low ceilings and drizzle.

Vegetation

The natural vegetation of most of Laos, combined with rugged terrain, creates a formidable obstacle to cross-country movement except along established routes. The greater part of the country has a dense cover of broadleaf evergreen forest with undergrowth varying from a low carpet of ferns and other small plants where the high forest canopy is continuous, to a thick tangled mass of vines and smaller trees (including bamboo) where the canopy is broken and allows sunlight to penetrate. The forests are more open (1) in the area centered roughly on the stretch of Nam Hou between Luang Prabang and Dien Bien Phu; (2) on the Savannakhet Plain; and (3) on the Plateaus of Tran Ninh and Bolovens. The plains on the Plateau du Tran Ninh are largely grass covered, as are also those mountain slopes that in the past have been subjected to native slash-and-burn agriculture.

Ethnography

Although Laos has an estimated population of only 2,000,000 (1956), it is a veritable ethnographic museum. The Lao, a subgroup of the Tai ethnic group constituting 50 to 75 percent of the population, are culturally and politically dominant.* A number of small indigenous minority groups, subdivided into numerous tribes, and several nonindigenous minority groups comprise the remainder of the population. The largest of these, probably numbering more than 350,000, is the indigenous group officially known as the Phoutheng (mountain people) or Laotheng (mountain Lao), but commonly called by the derogatory term "Kha" (slave). Other important indigenous groups are the Meo (about 100,000), the Yao (25,000-50,000), and a number of Tibeto-Burman peoples (15,000-25,000). Important nonindigenous minorities include an estimated 15,000-30,000 Vietnamese and 10,000-30,000 Chinese.

The distribution of the major ethnic groups is shown on Map 28272. The Lao and other Tai groups inhabit the lowlands, mainly along river valleys; only occasionally are they found at higher elevations. The non-Tai groups characteristically live at higher elevations, in the mountains or on the high plateaus. The Kha and the Yao usually live at elevations up to 3,000 feet; the Meo and Tibeto-Burmans, above 3,000 feet. The Vietnamese and Chinese are generally found in urban areas. According to a 1957 report, there were 10,000 Vietnamese in Vientiane, 7,000 in Savannakhet, 6,000 in Thakhek, 3,000 in Pakse, and 1,000 in Luang Prabang. Reportedly the main concentrations of Chinese are 15,000 in Vientiane, 7,500 in Pakse, 3,500 in Savannakhet, 1,800 in Luang Prabang, 1,500 in Thakhek, and 1,000 in Xieng Khouang. According to a 1959 Chinese Nationalist source, an additional 8,000 Chinese refugees fled from Mainland China across the border into northern Laos.

The linguistic situation is equally complex, with all of the major linguistic stocks of Southeast Asia represented in Laos. The Tai linguistic stock, numerically and culturally the most important, is represented by many languages, dialects, and subdialects, including Lao -- the official language of the nation, the primary tongue of most of the population, and the "lingua franca" of the remainder. Because of the complicated linguistic milieu, many Laotians, especially members of the minority groups, speak 2 or even 3 languages.

Inherent in such ethnographic complexity is the weakening affect it has on national solidarity. Although individual minority groups are small, collectively they constitute a large proportion of the total population of Laos. The minority groups are culturally disparate and politically distinct from each other. For the most part, they are culturally unassimilated and traditionally disregarded by the Lao majority; government officials and members of the upper class expect humility and even servility from them. This situation has engendered a feeling of resentment, even antipathy, toward the Laotian Government among at least some of the minorities. Such minorities are particularly susceptible to anti-government propaganda.

* The term "Lao" is used to refer to members of the ethnic subgroup and the term "Tai" to the larger ethnic group, which includes the Lao and a number of smaller tribes. "Laotian" refers to citizens of Laos and "Thai" to citizens of Thailand. The designations "Red Tai" (Tai Deng), "White Tai" (Tai Khao), and "Black Tai" (Tai Dam) apply to three tribal groups distinguished on the basis of the color of the clothes traditionally worn by them.

The official and dominant faith of the Kingdom of Laos is Theravada (or Hinayana) Buddhism, but it is a Buddhism permeated with Animism. Both the Lao and other tribal groups are steeped in spirit worship. From the standpoint of ideology, Buddhism will probably not be much of a bulwark against Communism because of its essentially passive nature. Furthermore, Communism reportedly made some inroads among the Buddhist population while Phoumi Vonevichit, a Communist Pathet Lao, was minister of religion for Laos in 1958.

Economy

Laos is an agricultural country; industry is virtually nonexistent. The Lao and other people in the lowland valleys cultivate paddy (wet rice) as their principal crop. Three main varieties of rainy-season rice are grown: an early variety planted in June and harvested in September; regular paddy planted in May and June and harvested in November and December; and a late-ripening variety planted in May and June but not maturing until late December or January. Most of the hill tribes practice "rai" agriculture, which entails slash-and-burn clearing of wooded areas, followed by dry rice cultivation. Rainfall is relied upon to furnish the necessary moisture for the hillside crops, and no dikes are built around the fields. Dry rice is planted at the beginning of the rainy season and harvested in the fall. The Meos also practice "rai" agriculture in the growing of opium poppies. Almost all of the Laotian peoples depend upon hunting and fishing to supplement farming.

Transportation

Transportation and communication facilities in Laos are inadequate even under ideal weather conditions. Their limited utility is even further curtailed during the rainy season. Laos has no rail lines and only a very limited number of roads. Few stretches of the roads can be used the year round by motor vehicles of all types; consequently, motor traffic is greatly restricted or impossible in the rainy season. (See Map 28213 and Transportation Notes for the condition of roads in Laos, and roads and rail lines in North Vietnam.) Ponies, animal-drawn carts, and coolies are widely used to move cargo over the many crude trails and tracks, particularly in the interior of the country. The use of even these primitive means of transport is limited during the rainy season by floods, mud, and landslides. (See Transportation Notes, III. Logistic Capabilities.)

Many of the rivers of Laos are also important arteries of travel, at least locally; and the larger ones have even been used in military operations. Although the vast majority of the rivers in Laos are within the Mekong watershed, most of the main rivers in Houa Phan (Sam Neua) and some in the eastern part of the Plateau du Tran Ninh flow eastward through North Vietnam to the Gulf of Tonkin. During the wet season the range of navigability on most rivers is greatly increased over that of the dry season (see Map 28213 and Logistic Capabilities). Periods of high water vary in length in different parts of the country. In the area north of Luang Prabang, including Phong Saly, high water lasts from May through September; from Luang Prabang southward within the Mekong watershed, it prevails from May through October; in most of Houa Phan (Sam Neua), the period of high water is from July through October; and in the eastern part of the Plateau du Tran Ninh, it lasts from August through December.

Because of limited ground and river transportation facilities, air transport is extremely important, often the only means of supplying remote areas. Weather conditions, however, particularly in the rainy season, can severely limit air operations both by interfering with actual flying and by rendering some of the natural-surface airfields inoperable. (See Map 28213 for location of airfields.)

Effect on Military Operations

Factors of military geography suggest that guerrilla tactics will, to a large extent, characterize the pattern of military operations in Laos -- particularly during the rainy season. In areas near North Vietnam supply points, anti-government guerrilla forces might successfully obtain limited objectives, among them the establishment of advance bases for more intensive military efforts that could be launched at the advent of the dry season. During the dry season, logistical support for such military operations by troops indigenous to Southeast Asia would be facilitated by the fact that the onset of dry weather coincides with the rice harvest, thus augmenting the capability of native troops to live partially or totally off the land.

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TRANSPORTATION NOTES

I. ROADS

CLASSIFICATION

All roads for which sufficient data are available have been classified according to trafficability. In the classifications, which appear at the end of each road description, the following factors and the date, if known, are indicated:

Width (W): Given in feet.

Seasonability:

All-weather road (AW): With some maintenance, passable throughout year.

Limited all-weather road (LAW): Subject to interruption by floods or other causes but, with adequate maintenance, capable of being kept open even in adverse weather.

Fair-weather road (FW): Almost impassable in adverse weather; can be kept open only through heavy maintenance.

Load: Maximum total laden weight (in tons) of vehicles that can safely traverse road.

Capacity: Estimated capacity of road each way per 10-hour day (in tons).

Example: 20-feet/LAW/9/630 (1959)

LAOS*

ROUTE 13: LUANG PRABANG--KHONG

Luang Prabang--Vientiane (247 miles)

Laterite surfaced, probably badly potholed and washboarded after rainy season; varies from two-lane road to one-lane track. Numerous one-lane bridges, sharp turns, and steep grades. Overall length rated as fair-weather road. Sections of road closed by Government order, 15 June 1959, because early rains caused landslides, potholes, slippery surface, and rapid rise of Nam Song, making ferry at Phatong inoperable.

Vientiane--Thakhek (229 miles)

Vientiane to Paksane (90 miles; 3-hour drive): fair-weather road, chiefly laterite surfaced, potted, and washboarded. Nam Ca Dinh to Pak Hin Boun: road sections deteriorated to jungle tracks. Road section from Paksane to point 7 miles north of Thakhek closed 15 June to 30 September 1959 because of flooding. Classification: less than 13-feet/FW/5/150.

Thakhek--Savannakhet (87 miles)

Gravel or laterite surfaced, with some water-bound macadam. Many steel-truss or timber bridges. Classification: less than 13-feet/LAW/7/450.

Savannakhet--Pakse (164 miles)

Savannakhet to Sé Bang Hieng: surface potted, often only dirt, Sé Bang Hieng to Pakse: bridges and road in good repair; surface bumpy but few potholes, July 1959. Classification: less than 13-feet/LAW/7/720.

Pakse--Khong

Mainly gravel, with some macadam stretches. Classification: less than 13-feet/LAW/7/450.

PAKSE--PAK SONG--ATTOPEU--DAK TO--KONTUM

All-weather road from Pakse to Paksong, October 1958; impassable to jeeps 1-1/2 miles beyond Paksong, August 1959. Laotians bulldozing trail beyond Attopeu; reportedly reached point 15 miles west of Laos-Vietnam border and 7 miles southwest of Ban Pa Kha, August 1959. Vietnamese pushed rough jeep trail from Dak To to Laos-Vietnam border at point 2.5 miles west of Ban Elk. Dak To to Kontum, road excellent, 18-ton capacity.

ROUTE 9: SAVANNAKHE--SENO--TCHEPONE--LAO BAO (162 miles)

Macadam surfaced, roadbed 6-8 inches deep; probably deteriorated into gravelled road because of poor maintenance. Savannakhet to Dong Hene: reportedly potholed, with extreme washboarding, May 1959. Dong Hene to Lao Bao: generally fair-weather road, some stretches with gravelled surface may be all-weather. Fording necessary where bridges have been destroyed; destruction of four-span steel bridge 551 feet long over Sé Bang Hieng would be major obstacle during flood season.

ROUTE 12: THAKHEK--M. NHOMMARATH--COL DE MUA GIA, NORTH VIETNAM BORDER (87 miles)

Thakhek to M. Nhommarath: macadam surfaced, good to poor condition, 1956; probably deteriorated to gravel or dirt, 1959. Varied width, from 16 feet at Thakhek to single lane; sharp curves; steep gradient. Untrafficable at end of Mua Gia corridor in Laos. Viet Minh invaded Laos through Col de Mua Gia using numerous carts, 1953. Classification: Thakhek to M. Nhommarath, 13-feet/FW/7/150; Nhommarath to Mua Gia, 13-feet/FW poor/under 5/60.

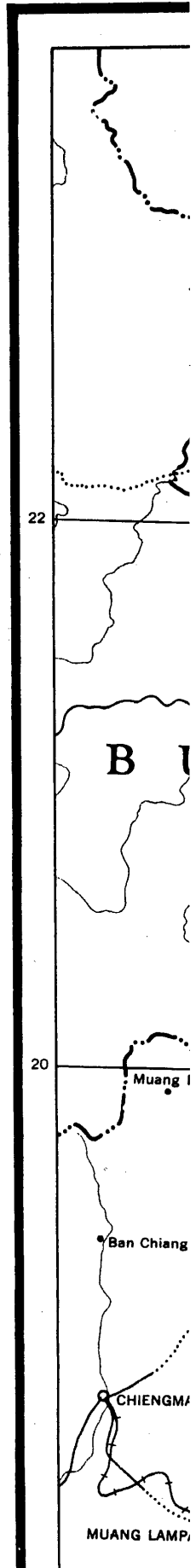
ROUTE 8: M. NHOMMARATH--NAPE

Fair-weather jeep track. May 1956, at beginning of flood season, Nam Theun 20 miles beyond Nhommarath already 280 feet wide, 10 feet deep at point 30 feet from bank, complete barrier to motor traffic. Unpowered ferry at this point. Probable classification: less than 13-feet/FW poor/5/60.

ROUTE 7: PHOU KHOU--NONG ET

Phou Khoum (Jct. Route 13 and Route 7)--Ban Ban

Reportedly limited all-weather route for 4-wheel-drive vehicles, 1958. Gravel or laterite surfaced, deteriorating to dirt in places. Fair-weather classification probably more realistic because of rainy season landslides, flooding, unfordable rivers, and numerous potholes. Sections of road closed by Government decree, 15 June 1959, for duration of rainy season.



Ban Ban--Hong Et (43 miles)

Used by 3/4-ton, M-42, winch-equipped truck at beginning of rainy season, May 1956.

BRANCHES FROM ROUTE 7

Ban Ban Toward Sam Neua

Dry-weather jeep road under construction; 35 miles jeepable, February 1958.

Plaine Des Jarres Jct.--Xieng Khouang (18 miles)

Very rough surface, macadam in places; ample rock ballast probably insures all-weather trafficability to Xieng Khouang; farther southeast of town, route deteriorates to path, 1956.

Xieng Khouang to the South (22 miles)

Fair-weather track through rugged, precipitous mountain country; ended in landslide, 1956. Extension to Paksane as jeep track planned, 1959.

NORTH VIETNAM

ROUTE 4: MON CAY (CHINESE BORDER)--TIEN YEN--LANG SON--CAO BANG

Mon Cay--Tien Yen

Crushed rock and clay surfaced; 15 feet wide, needs heavy maintenance in rainy season. Ferries may be bottlenecks. Estimated capacity 150 tons per day.

Tien Yen--Lang Son

Most of road all-weather base with rough poor surface; trucks travel at slow speed; needs heavy maintenance in rainy season. Probably limited all-weather road.

Lang Son--Cao Bang

Conflicting reports (1959) as to condition; some indicating that road is macadamized and capable of 5-ton-truck traffic, others stating that road between Cao Bang and Dong Dang is in poor condition and rarely used. Probably limited all-weather road, needing heavy maintenance in rainy season. Main road may cross China border southeast of Cao Bang, following Dong Khe--Phu Hoa--Ta Lung--Lung-ching route.

ROUTE 1: LANG SON--HANOI--DEMARCATION LINE

Lang Son--Phu Lang Thuong

Reportedly dirt surfaced, poor condition, 1957; subsequently repaired; may be partially asphalt surfaced. Probably limited all-weather road.

Phu Lang Thuong--Hanoi--Phu Ly

Condition fair to poor; mostly asphalt surfaced; deteriorating in places to loose surface; probably limited all-weather road, 1959.

Phu Ly--Demarcation Line

Sections badly deteriorated; continuously under repair, with several sections greatly improved, notably from Phu Dien Chau (at terminus of Route 7 leading to Lao border) to Vinh and port of Ben Thuy. Bottlenecks at ferries. Classification: 12-feet/FW/7/330 (1959).

ROUTE 5: HANOI--HAIPHONG

Main road; asphalt surfaced, good repair, June 1957. Probably limited all-weather road or better.

ROUTE 18: HAIPHONG--HON GAY--TIEN YEN

Haiphong--Hon Gay

Reportedly gravel surfaced, all-weather road suitable for heavy traffic, 1959.

Hon Gay--Tien Yen

Badly deteriorated; jeepable in dry weather, 1959.

THANH HOA--HOI XUAN--LAOS BORDER

Thanh Hoa to Hoi Xuan: paved surface, 1957; probably all-weather road suitable for heavy traffic. Supplies moved by truck from Hoi Xuan to Ban Na Meo, then by coolie into interior of Sam Neua. Ban Na Meo to Muong Poune Teu: track 8 feet wide; jeepable in dry weather. Information, 1957.

ROUTE 7: PHU DIEN CHAU--CON CUONG--CUA RAO--MUONG SEN--LAOS BORDER (146 miles)

Continuing reports of repair along route. Classification: 10-feet/FW/5/100.

Phu Dien Chau--Con Cuong

Road 20 feet wide; reportedly, trucks reach Con Cuong in all weather.

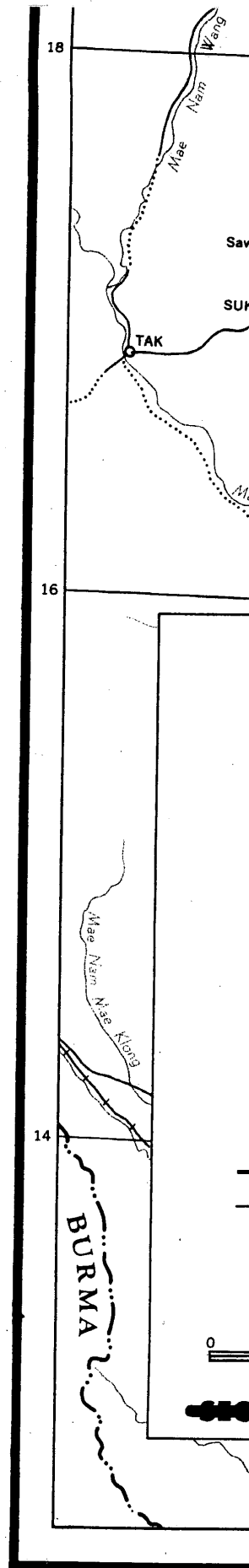
Con Cuong--Muong Sen (72 miles)

Trucks reached Muong Sen in dry weather, 1957; may now be macadamized to Cua Rao, 1959; possibly all-weather to Muong Sen.

Muong Sen--Laos Border

Track reportedly cleared to within 2 miles of border, September 1958; 25-foot-wide road with solid roadbed under construction; probably gravel surfaced and open to light trucks.

* The variation in the types of material presented in the road descriptions reflects the general paucity of systematic reports for Laos and North Vietnam.



ROUTE 8: VINH--LINH CAM--LAOS BORDER (Vicinity of Nape)

Condition fair to poor. Reconstruction reportedly underway, 1959.
Classification: 10-feet/FW/under 5/50.

ROUTE 12: HA TINH--HOI DINH--LAOS BORDER (Col De Mua Gia)

Reportedly scheduled for repairs, 1958.

LE THUY--DONG VANG VANG (Near Demarcation Line)

Reportedly under construction, 1959. Section from Vit Thu Lu (17°04'N-106°38'E) to Dong Vang Vang (16°46'N-106°35'E) in usable condition.

ROUTE 3: CAO BANG--THAI NGUYEN--HANOI

Reportedly open only to military traffic, 1959.

Cao Bang--Thai Nguyen

Resurfaced and improved, 1957-58. Classification: 18-feet/LAW/7/630.

Thai Nguyen--Hanoi

Will support heavy traffic. Classification: 20-feet/AW/9/3000.

ROUTE 2: HA GIANG--TUYEN QUANG--HANOI

Recently repaired. Ha Giang-Tuyen Quang stretch widened by 7 feet. Classification: 18-feet/LAW/7/630.

LAO KAY--JUNCTION ROUTE 2

Road Lao Kay to Ban Phiet, 4 miles east, jeepable in FW only, 1958. Remainder of road to junction of Route 2 is probably usable only in fair weather.

LAO KAY--SOUTHEAST (In Red River Valley, Parallel to Rail Line)

Good road under construction, generally not yet trafficable for lack of bridges, 1958-59.

YEN BAY--SON LA

Open to heavy truck traffic.

ROUTE 41: LAO KAY--LAI CHAU--TUAN GIAO--SON LA--SUYUT--HANOI

Lao Kay to Suyut: road passes through mountainous terrain; driving hazardous or impossible in rainy season because of floods, landslides, washouts, and fogs. Speeds less than 10 mph often necessary. Bridges and fords numerous. With heavy maintenance in wet season probable classification: Lai Chau--Suyut, 18-feet/LAW/9/300; Suyut--Hanoi, 18-feet/LAW/9/630.

Lao Kay--Cha Pa

Gravel surfaced; narrow; alternate one-way traffic. Being resurfaced, 1959. Probably limited all-weather road.

Cha Pa--Lai Chau

Passable to wheeled vehicles, 1959. No evidence of bridge over Black River to Lai Chau, nor of powered ferry service; crossings by sampan.

(Ban Nam Coum--Lai Chau)

Conflicting reports (1959) as to existence of route--one indicating that 12-feet/FW/5/75 route exists and is currently under reconstruction; other stating route is only a foot path through rice fields.

Lai Chau--Tuan Giao (65 miles)

Crushed-stone and clay surface; generally one-lane, 8 feet wide; capacity limit 3-ton trucks; landslides in wet weather; jeeped in 7-1/2 hours, 1959.

Tuan Giao--Son La (50 miles)

Open to 3-ton trucks; fords difficult in rainy season. Much road construction in progress, March 1959.

Moc Chau--Suyut

Single lane; surface of clayey earth with some sharp, broken stones; rough on tires. Moc Chau to Hanoi, 106 miles, jeeped in 11 hours, March 1959.

Suyut--Hoa Binh--Hanoi

Greater part of route crosses relatively flat terrain. Hoa Binh-Hanoi: road 15 feet wide, smooth surface; speeds of 20 mph possible, February 1958.

BRANCHES FROM ROUTE 41

Lai Chau--Moung Tong

Jeepable in dry season; one-way traffic only. Moung Tong probably terminus of pony trail to Phong Saly, 1958.

Tuan Giao--Laos Border

Tuan Giao--Dien Bien Phu

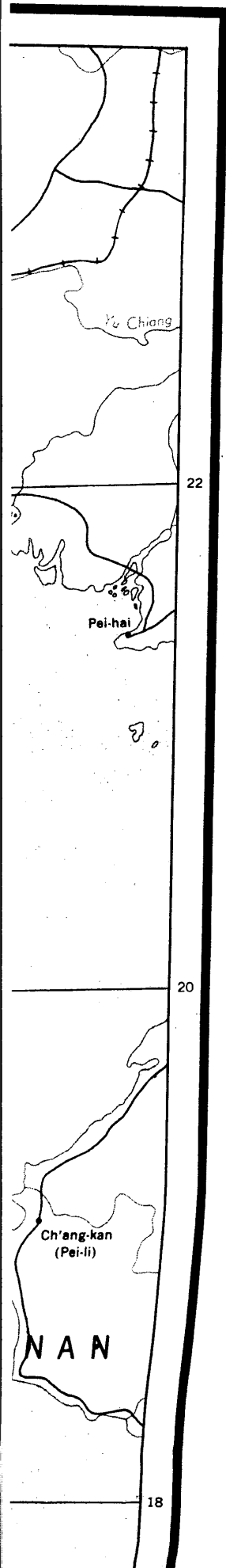
Fair-weather road; single lane, 8 feet wide except in flat areas; 3-ton truck capacity; speeds up to 12 mph possible, 1958-59.

Dien Bien Phu--Laos Border

From southern end of Dien Bien Phu plain, road winds through mountains; has earth and soft rock surface. Reportedly, may be all-weather truck route as result of work in 1958-59 dry season.

Moc Chau--Laos Border (20 miles)

Single lane, 8-10 feet wide; soft earth surface; bridges and culverts temporary. Jeepable in dry season, with possible 3-ton-truck capacity. Information, 1958.



II. RAIL LINES

KUNMING (CHINA)--LAO KAY--HANOI

Meter gauge throughout. Lao Kay to Hanoi: reportedly has excellent roadbed; well maintained. Probable average maximum freight capacity 850 short tons each way per day; theoretical capacity estimate 2,100 short tons.

NANNING (CHINA)--DONG DANG--HANOI

Standard gauge to P'ing-hsiang; meter gauge to Hanoi, making transshipment necessary at P'ing-hsiang. Dong Dang to Hanoi: reportedly in excellent condition; well maintained. Probable average maximum freight capacity 1,000 short tons each way per day; theoretical capacity 3,000 short tons.

III. LOGISTIC CAPABILITIES OF PRIMITIVE TRANSPORT
IN NORTH VIETNAM

(Based on Viet Minh Decree No. 92, 14 July 1952)

PORTERS (Employing yoke and two baskets)

Mobility in wet season (June to October) severely limited by washing away of trails in mountain districts.

Rate of Travel

Load	Normal Load (pounds)		Normal Journey (miles per day)	
	Level Country	Mountains	Level Country	Mountains
	Rice	55	30	15 (day)
Arms	33/44	22/33	12 (night)	7 (night)

PONIES

Very important in dry season, with convoys up to 100 animals not uncommon. Largely inoperable from June to October in mountain districts owing to washing away of trails. Ferrying possible, 3 or 4 ponies to canoe. Normal load-carrying capacity 120 lbs. per animal, distributed in two loads. Normal stages 7-15 miles per day. Reportedly, Pathet Lao had hundreds of ponies available for emergency use, 1955.

RIVER TRANSPORT BY PIROGUE (Native Canoe)

Normally operable throughout year; subject to seasonal difficulties peculiar to both high- and low-water periods. Three types of vessels used on rivers in Northern Laos, other than Mekong.

1. Light dugout canoes, 20 feet long. Cargo capacity 300 lbs. Used on upper reaches of rivers, e.g., Nam Na between Phong Tho (22°36'N-103°26'E) and Pa Tan (22°27'N-103°11'E).
2. Canoes of 3-plank construction, 40 feet long, with curved roofs covering some 17 feet of the vessel amidships. Light enough to be dragged upstream in worst stretches. Maximum cargo capacity about 1/2 ton or a little more than 3 times that of light dugout canoe. Used on Nam Na between Pa Tau (22°37'N-103°11'E) and Lai Chau; also on Black River above Lai Chau as far as Muong Boum (22°22'N-102°49'E) and probably to Chinese frontier.
3. Large dugout canoes, deep-water craft, 50-60 feet long; must be poled upstream or hauled by rope. Cargo capacity up to 3 tons. Used on Nam Hou River below Hat Sa (port of Phong Saly) and upper reaches of Mekong as far as Luang Prabang.

BICYCLES

Much used by Viet Minh in campaign against French; in Northern Laos, use limited by mountainous terrain. Normal load 44 lbs. for average of 12 miles per day; evidence indicates loads up to 100 lbs. possible under favorable conditions.

OXEN AND WATER BUFFALO

Military use of animals limited to short hauls of "soft" loads (e.g., rice) because of extremely slow movement and difficulty of devising suitable saddles for "hard" loads. As draft animals, can haul large loads but use restricted to riverine tracts as along the Song Ma and the Nam Sam.

Rate of Travel

Type of Transport	Normal Load (pounds)	Normal Journey (miles per day)
Ox Cart	550	9
Buffalo Cart	770	7

BAMBOO RAFTS

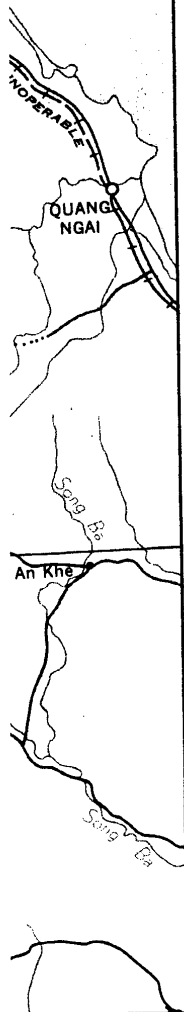
Various sizes; frequently employed for downstream traffic in water between rapids.

H
JAM

RANE
DA NANG)

16

14



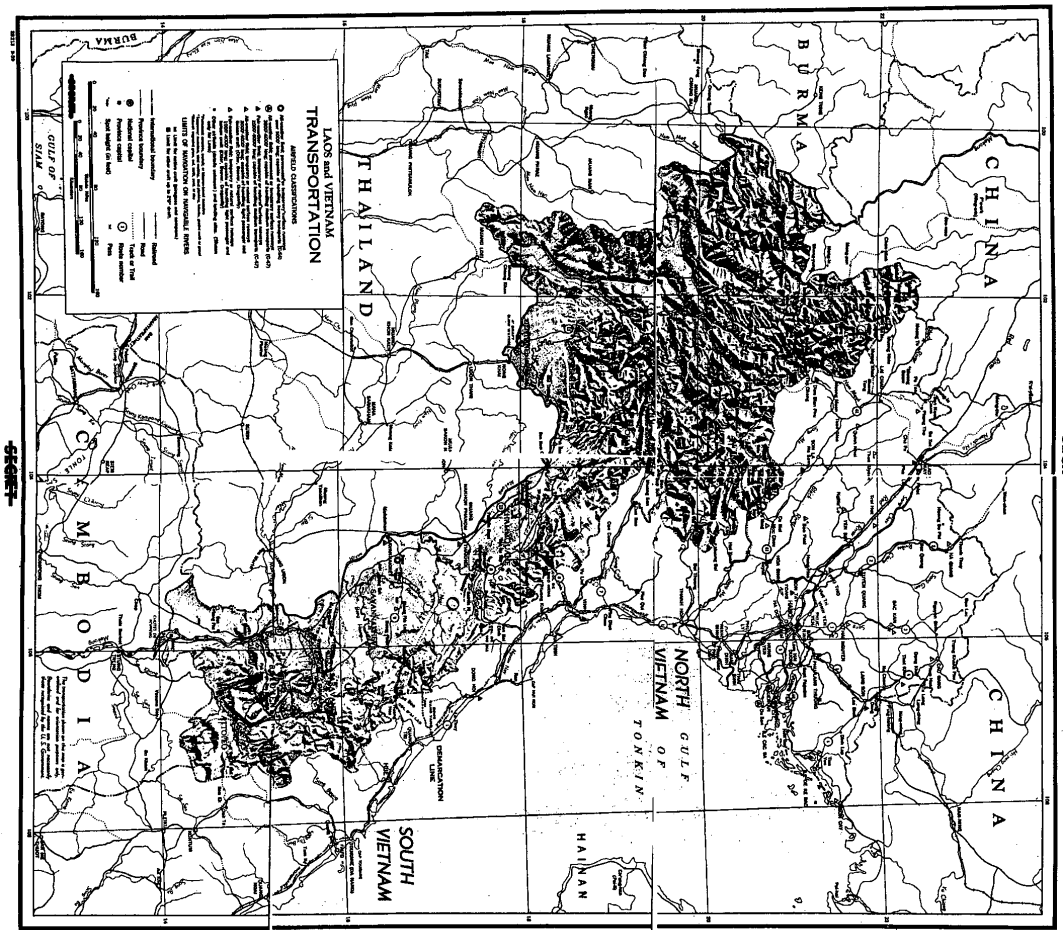
SECRET

1. This map shows the transportation routes in Laos and Vietnam, including roads, rivers, and air routes. It is intended for use by military and intelligence personnel.

2. The map covers the area from 10°N to 22°N latitude and 102°E to 106°E longitude. It includes the following countries and regions: Laos, Vietnam (North and South), Thailand, Burma, and China.

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