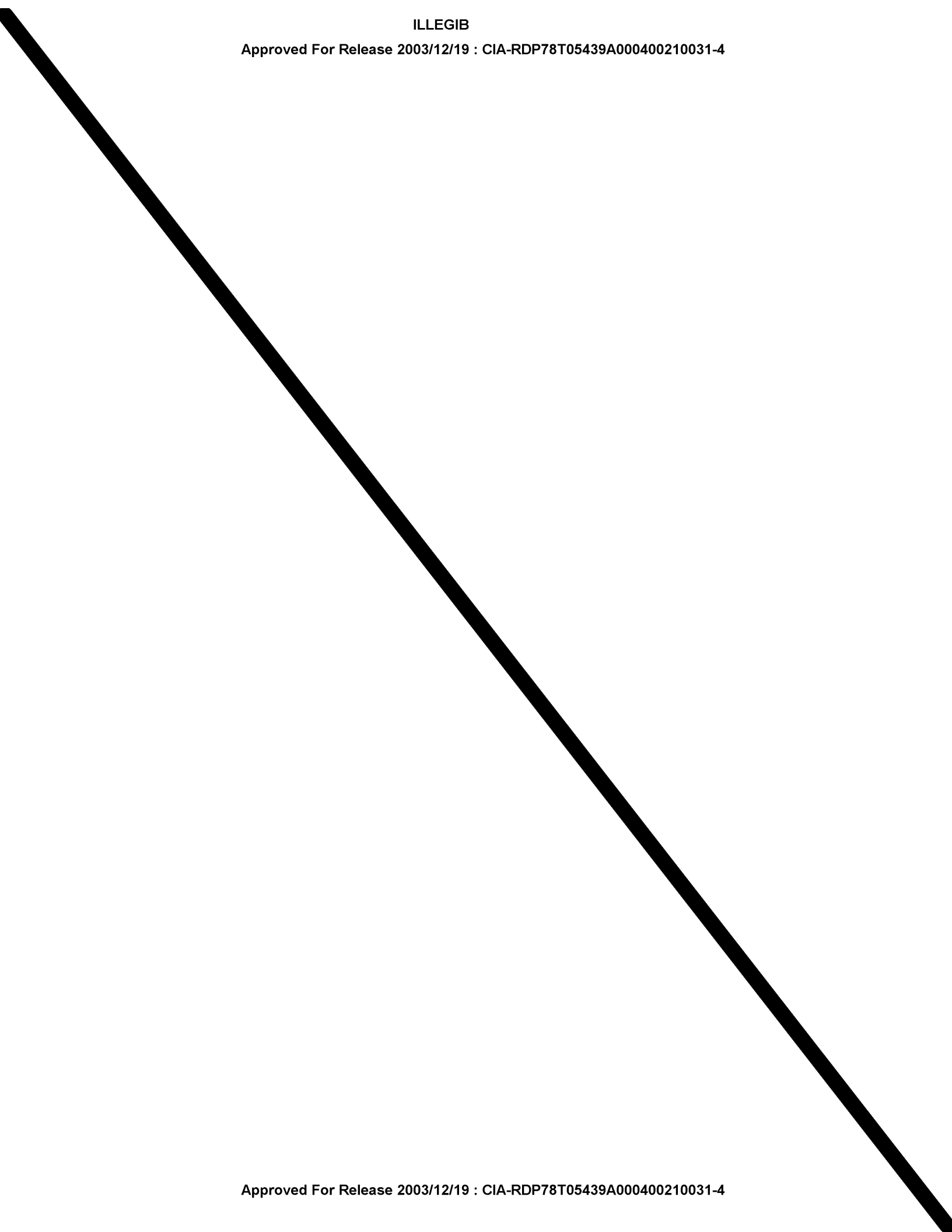

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(C) CHINESE COMMUNIST MILITARY LOGISTICS AND CAPABILITIES

TAB A- CAPABILITIES ON THE SINO-INDIAN/NEPALESE FRONTIER

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CHICOM MILITARY LOGISTICS AND CAPABILITIES

TAB "A"

SOUTHWEST THEATER

SINO-INDIAN-NEPALESE FRONTIER

INDEX

ANNEXES - Data used as a basis to calculations:

*Gazetteer in this study is a draft which will be replaced by a revised list in final report.

I. STATEMENT OF THE PROBLEM

To determine the maximum force which the Chinese Communists can logistically support in a sustained attack on India through the Himalayas and the most favorable areas and timing for such an attack.

II. SUMMARY OF STUDY AND CONCLUSIONS

1. Ground Capabilities

a. Assuming a one-year stockpiling program prior to the attack and no interdiction of supply lines, the Chinese Communists could deploy and support for one or two months a maximum of nine Infantry divisions and twenty separate regiments, totalling about 153,000 men, for attacks against India and Nepal. The best weather for a probable main attack in the Northeast Frontier Agency (NEFA) area exists in October and November. Limited objectives would likely be attained, but the logistic support requirements on supply routes supporting a main attack through NEFA are assessed as inadequate to sustain operations at this maximum level to the initial objectives. (Section VIII and Appendix C).

b. We expect Chinese attacks would be directed to those border areas claimed by Communist China, rather than in areas not in dispute, such as the Chumbi Valley*, where prepared Indian defenses also exist. Further, we believe it unlikely that China would attack India and Nepal simultaneously. We therefor believe that a more realistic assessment of the force the Chinese could employ and sustain to their initial objectives would be three light infantry divisions and fifteen separate regiments, totalling approximately 72,000 men, on the whole Sino-Indian frontier. The main attacks would probably be towards the Gauhati/Tezpur area of Assam through the NEFA and in Ladakh towards Leh, with only a diversionary move in the Chumbi Valley. Further advances would require additional improvements of the routes through the Himalayas. (Section VIII).

2. Air Capabilities

The Chinese are hampered by having only three airfields close to the

* See Gazetteer, Page A39, and Map 2 for place names and locations.

frontier which can accommodate jet aircraft, and one of these (Nagchhu Dzong) is temporarily unserviceable. The Chinese could deploy a maximum of 175 tactical aircraft to forward airfields in the Tibetan area, although tactical aircraft have not been detected to date in this area. This force could consist of 90 jet fighters, 25 jet light bombers, and 60 propeller light bombers. Operating beyond the range of fighter cover, the Chinese could employ their 15 TU-4 bombers against Calcutta, New Delhi, and possibly Bombay. Considering their limited facilities, and in order to avoid retaliatory attacks, the Chicoms might elect to limit their use of aircraft in such an operation to that of air defense. In such event, only fighter aircraft would be deployed. (Section VII).

3. Military Situation (Jan 1964)

a. Ground Order of Battle

The Chinese Communist Army forces now in the Sino-India border area consist of five divisions, eleven separate combat regiments, a separate artillery regiment, six border defense regiments, and administrative and support troops, totalling about 114,000 men. A maximum offensive would require the redeployment of additional divisions from elsewhere in China, which the Chinese Communist Army could accomplish without jeopardizing its overall military posture. (Section VI).

b. Logistic Situation

(1) The remoteness of Tibet makes logistic support difficult. From rail transhipment points at Ch'eng-tu, Hsi-ning, Lan-chou, Hung-liu-yuan, and Urumchi-Turfan, supplies must be trucked more than a thousand miles over difficult main supply routes (MSRs) to depots and units on the Sino-Indian and Sino-Nepalese frontiers. This creates a severe demand on vehicles, fuel, and the supply organization.

(2) Used to capacity, the four MSRs could deliver a maximum of 1,840 short tons per day, requiring some 12,900 trucks. Available evidence indicates that the People's Liberation Army has from 3,000 to 4,000 trucks in Tibet supplying the four MSRs and delivering between 700

and 800 short tons per day for a garrison requiring approximately 570 short tons per day. Any excess tonnage capacities above garrison requirements is probably being allocated to the expansion of facilities in the Tibet area rather than stockpiling. Considerable improvement of lines of communication, barracks and storage areas, and vehicle workshops has been noted since 1960.

(3) We have found no indications that the Chinese are having undue difficulties with the logistic support of this area. The facilities identified, though not elaborate, are assessed as adequate for the 114,000 troops we estimate now in the area. The proximity of four petroleum refining and storage areas close to the railheads supplying the MSRs assures adequate POL supplies.

4. Vulnerability to interdiction

a. Transportation

Chinese transportation ties with Tibet are very vulnerable to long range interdiction. The simultaneous destruction of key rail and road bridges and rail classification yards would cut supply to Tibet for not less than a month. The destruction of facilities at selected rail-to-road transhipment points would further handicap the supply effort.

b. Logistic base

Because of the almost total dependence of units in the Tibet area on supply by road, serious damage to the oil refineries at Lan-chou, Yu-men, Leng-hu, and Tu-shan-tzu would very severely affect any military operation launched by China through the Himalayas. Further, such damage would result in serious and long-term disorganization of the country's industrial base. Close to the Sino-Indian frontier, the only critical short-range logistical support installation so far identified is the Central Transportation Headquarters and vehicle workshops in Lhasa. (Section IX).

5. Intelligence gaps

The reliability of the intelligence used in this study varies from good

to poor. Road, railroad, and airfield intelligence is considered good. Intelligence derived from collateral and communications intelligence sources in this area is generally poor. Continued exploitation and analysis of the latest photography, which was not completed in time for this study, will improve the reliability and scope of intelligence on logistic facilities used in the preparation of this paper.

III. FACTS BEARING ON THE PROBLEM

1. There are limited access routes into India and Nepal. Therefore attacks in the following areas are considered:

a. Western Area

(1) Ladakh

(2) Through the passes south of Ladakh and northwest of Nepal

b. Central Area

Through the five principal passes into Nepal

c. Eastern Area

(1) Through the Chumbi Valley towards Siliguri

(2) Through western Bhutan to Paro Dzong

(3) Through eastern Bhutan to Lhuntsi Dzong

(4) Through western North East Frontier Agency (NEFA) to Tezpur

(5) Through central and eastern NEFA to the Brahmaputra Valley

2. The capability described in this study is based on the ability of the Chinese Communists to logistically support attacks through the Himalayas into India and the border states.

3. "Optimum" and "minimum" road capacities* adjusted for climatic conditions as well as all available intelligence on the availability of supplies and transportation have been used to determine logistic capability.

4. Tonnages are expressed in short tons. 25X1C

*"Optimum" road capacities are those calculated from the agreed US [redacted] road methodology for normal usage in fair weather over a long period. "Minimum" road capacities are calculated from the methodology using figures for wet base and sub-base.

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TAB "A"

IV. ASSUMPTIONS

1. Although not necessarily launched simultaneously, major attacks on India and Nepal will continue concurrently in all areas of possible attack. The supply requirement for such areas will therefore be simultaneous once all attacks have begun.

2. The Chinese Communist Army (CCA) can train, equip and acclimatize sufficient forces to provide the maximum number of troops that could be logistically supplied in all areas of attack.

3. In order to meet maximum troop requirements for attack, augmentation of CCA forces now in Tibet will take place so that reinforcements have at least one month to acclimatize to Tibetan altitudes before being committed to the attack.

4. During the period of reinforcement normal supply to Tibet will be interrupted and troops in the region will be supplied from stockpiles.

5. Without disrupting essential civilian air schedules, the Chinese will use tactical air supply and airborne forces.

6. The Chinese will begin a stockpiling program one year before undertaking a major attack on India and the border states.

7. The amount of supply required for formations and units engaged in attacks on India will be based on "light combat rates" * except for forces operating through the Chumbi Valley, which will be at "average combat rates".**

8. Reserve forces in the forward staging areas will total in number about a quarter of those engaged in combat.

9. The Chinese Communists are prepared to violate the neutrality of Sikkim and Bhutan.

10. The light infantry division and the independent infantry regiment will be the standard units to be employed. Organizations and tonnage requirements are given at Annexes I and II.

* "Light Combat rates" - Based upon average ammunition expenditure over a period of one year in a combat zone. (See Annex IIB)
** "Average Combat rates" - Based upon ammunition consumption for minor skirmishes between small units over a period of one year. (See Annex IIB)

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TAB "A"

V CAPABILITY TO SUPPLY TIBET FROM RAILHEADS IN CHINA

Railroads

There are no railroads in the Tibet area

1. Railheads

The main railheads for the supply of forces in Tibet are Lan-chou Hsi-ning Ch'engtu Hung-liu-yuan and Urumchi/Turfan From those points, supplies must be moved by truck over great distances; for example Lan-chou Urumchi and Ch'engtu are about 800, 900, and 700 airline miles respectively from Lhasa.

2. Lan-chou-Urumchi Line

Both Lan-chou and Urumchi are on the standard-gauge Lung-hai line, which extends to the east across mainland China. This line is jointed at Lanchou by a standard-gauge line from the north, a branch line from which also joins the Urumchi line at Wu-wei.

3. Lan chou-Hsi-ning Line

The short standard-gauge line extending from Lan-chou west to Hai-yen generally follows the Huang Shui River valley. The present terminals on the line are Ho-K'o-nan and Hsi-ning.

4. Ch'engtu

Ch'engtu is served by a standard-gauge line which branches from the Lung-hai line at Pao-chi to the southeast of Lanchou. There is no railhead to the west from Ch'engtu.

5. Status of Railroads

The condition and efficiency of railways in West China are not accurately known. Communist China has made significant improvement during the past decade in railroad plant and operation, but operations are hampered by:

(1) poorly engineered roadbeds,

(2) light or overage track construction,

(3) low-quality initial installation and inadequate maintenance of the right of way,

(4) deterioration of all plant through overloading,

(5) insufficient length and the too great distance between passing tracks,

(6) insufficient double-tracking and

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(7) inadequate motive power and rolling stock inventories.

All the effects of the foregoing shortcomings are felt on the lines included in this study. Gradual elimination of these deficiencies may be expected if the economy continues to recover.

6. Tonnage Capabilities

The railroads serving Lanchou, Hsi-ning, Hung-liu-yuan, Ch'engtu, and Urumchi/Turfan can deliver tonnages to railheads in excess of the tonnages which the MSRs into Tibet can carry.

7. Road Transportation

a. There are four main supply routes (MSRs) into Tibet from China proper, three are over 1,000 miles long. The MSRs originate at the railheads mentioned above. From west to east, the MSRs are:

(1) the Urumchi-Kashgar-Aksai Chin road, which extends from Kashgar, in neighboring Sinkiang, to Tashigong in western Tibet;

(2) the central MSR, which extends from Hsi-ning and Hung-liu-yuan to Lhasa;

(3) the northeastern MSR, which goes from Hsi-ning to Choma Dzong;

(4) the eastern MSR, from Ch'engtu in Szechwan to the area of Tibet north of India's Northeast Frontier Agency (NEFA).

b. The central MSR receives traffic from two initial points which converge at Golmo (Ka-erh-mu). The central MSR is the best and highest-capacity route into Tibet. It is also the easiest to keep in operation. The eastern MSR has been extremely difficult to maintain because of the cross-compartmented nature of the terrain and the many rivers which it crosses.

8. Nature and Condition of Road Net

a. Tibet has a rudimentary and low-capacity road network. There are no significant inland waterways in Tibet. The Tsangpo (Brahmaputra) River is navigable to small craft for short sections, but is of more importance as an obstacle to north-south transportation. The Tsangpo is not navigable through the Northeast Frontier Agency into India.

b. The basic weakness of Tibet's road network is its lack of development. In many of the areas, roads have been built merely by removing rock and large stones from the natural surface followed by improvement.

c. Because of poorly constructed subgrades, inadequate surfacing, and poor drainage facilities, roads deteriorate constantly and require continuous repair.

d. A major weakness of the region's road system is the absence or poor construction of bridges. Although bridging in the desert basins is not of year-round importance, spring runoff or summer flash floods often make ford sites unusable for short periods. High level cable suspension bridges which cross the deep ravines of the Yangtze, Mekong, and Salween rivers are vulnerable to attack. Almost without exception, bridges in Tibet are one lane wide with estimated gross load capacities varying from 6 to 12 short tons.

9. Specific Routes

The Main Supply Routes (MSR) are as follows:

a. Eastern MSR: Ch'engtu-Chomo Dzong, ordinarily serving eastern Tibet.

b. Northeastern MSR: Hsi-ning-Chomo Dzong, also serving eastern Tibet.

c. Central MSR: Lanchou/Hsi-ning/Hung-liu-yuan-Lhasa via Golmo, ordinarily serving Lhasa and the central sector.

d. Western MSR: Urumchi/Turfan-Kashgar/Yeh-ch'eng, usually serving only the western sector.

10. Supply Flow

Northeastern and Eastern MSRs:

From the base supply depots at Ch'engtu and Hsi-ning, supplies are delivered by road to Chomo Dzong depot area serving the Ch'engtu and Lin-chih Military Sub-Districts. From Chomo Dzong supply depot, supplies are distributed to:

(a) The northwest garrison area (units employed on internal security in the Ting-ch'ing area).

(b) Li-ma (units operating in eastern NEFA).

(c) Khata (units deployed on the northeastern border of the NEFA and employed on internal security).

11. Central MSR:

Lanchou, Hsi-ning, and Hung-liu-yuan are the base supply depots serving the main depot complex at Lhasa. From Lhasa, supplies are distributed to unit supply

depots at Zhikatse Tsethang/Nedong Dzong, Gyangtse, and small unit supply depots east to Longju and west along the Nepal border.

12. Western MSR:

Supplies reach main supply depots at Kashgar and Yeh-ch'eng from the base supply depot at Urumchi/Turfan. Troops supplied are in the Ladakh area and south to Tashigong. This MSR also acts as an alternate means of supply to troop units as far south as Taklakhar.

13. Capacities:

See Appendix B and Map 2 for detailed seasonal capacities.

14. Tonnage delivered to the Sino-Indian frontier area by all four MSRs averages from 18.0 to 1350 short tons per day at the best and worst seasons of the year.

15. Availability of Motor Transport and Existing Stocks of Supplies

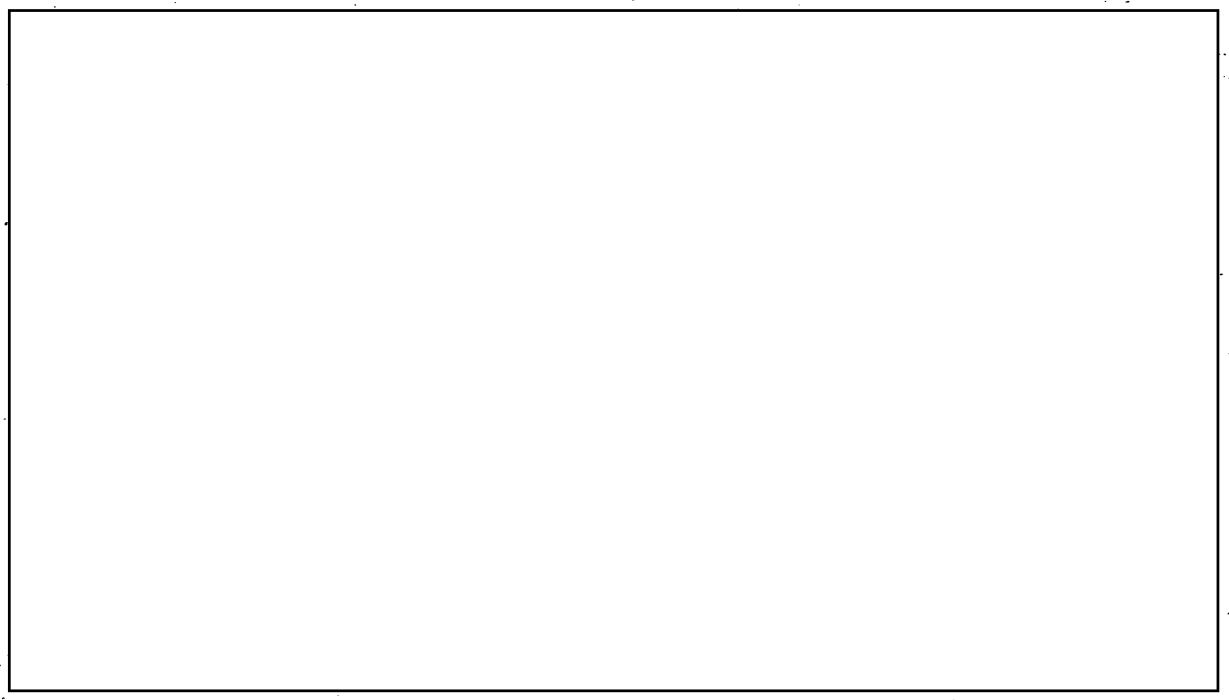
Motor Transport

The number of vehicles serving the Sino-Indian frontier is not known, but a 1961 collateral report indicated that 1,000 to 1,200 trucks were available for the Central MSR. In relation to the known strenghts of troops in Tibet, this provides a basis for a crude estimate of 3,000 to 4,000 trucks currently plying the four MSRs. It is estimated that an inventory of approximately 12,900 trucks would be required to deliver the maximum tonnage the MSRs can accommodate on a sustained basis. We have no evidence to suggest that the Chinese could not provide this number of trucks if they were prepared to cut transport requirements elsewhere.

16. POL

We have estimated that the Chinese would require approximately 543,000 tons of POL per year to support maximum ground and air operations against India, and to operate the four MSRs to capacity. This represents about 8.8% of the total POL available to China in 1962 (estimated at 6.2 million metric tons). We consider that China could easily afford this amount of POL without detriment to essential industry or the economy. There would be no transportation difficulties

in moving the POL from refineries at Tu-shan-tzu, Lan-chou, Yu-men and Leng-hu to the railheads serving Tibet



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18. Depots

Readout of photography of the Tibetan area and our order of battle intelligence are not sufficiently complete for a judgment to be made on the adequacy of existing logistic facilities in Tibet to support war against India. Photography has confirmed that Lhasa has a large complex of depots. A smaller group of depots have been identified in Ke Chomo Dzong area. Smaller supply areas are found in or adjacent to all unit locations. Most military installations have been expanded in the past three years. Some of this expansion has been the building of permanent barracks to replace tented camps. However, a notable depot expansion has taken place in the Tsethang area. This depot, which does not appear to house or be associated with any tactical unit, has roughly tripled in size since 1960. (Photo I)

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TAB "A"

VI. SUPPLY AND SUPPORT FROM TIBET OF A CCA ATTACK ON INDIA AND NEPAL

1. General

In order to determine the capability of the Chinese to supply the maximum number of forces which could be used to attack India and Nepal, it is necessary to consider:

a. Maximum force requirements for attack

b. Minimum force requirements within the Region for:

(1) Theatre reserve forces

(2) Internal security forces

(3) Administrative and transportation forces

c. Number of troops currently in Tibet to determine the extent to which they must be reinforced to meet the above requirements.

d. Ground force supply requirements, and stockpile capacities, at the three MSR terminus depots:

(1) Prior to reinforcement and before attack

(2) After reinforcement and during the attack

2. Maximum Force Requirements for Attack

Force requirements have been determined to be:

"Maximum": Seven light infantry divisions
Two standard infantry divisions
20 light infantry regiments

"Probable": Three light infantry divisions
15 light infantry regiments

(See Section VIII Paragraph 6. e and f.)

3. Minimum Force Requirements Within the Region

a. Theatre Reserve Forces

Assuming Theatre Reserve Forces will equal approximately a quarter of the number of troops engaged in combat in each area of the Himalayas (see para 2 above) it would be necessary for the Chinese to station the following reserve forces in the following areas:

(1) Khotan Military Sub-District - one regiment

(2) Ali Military Sub-District - two regiments

(3) Zhikatse Military Sub-District - "Maximum" - two regiments
"Probable" - nil

(4) Chiang-tzu Military Sub-District - "Maximum" - one light infantry division, "Probable" - nil

(5) Shan-nan Military Sub-District - four light infantry regiments.

(6) Ch'ang-tu Military Sub-District - two regiments

b. Internal Security Forces

It is anticipated that the Theatre Reserve Forces in the Military Sub-Districts noted in para 3.a. above, will be available for internal security duties in the areas indicated. In addition, it is considered necessary for the CCA to station five border defense or internal security regiments (currently in Tibet) in the following areas:

(1) Khotan Military Sub-District - one regiment

(2) Lhasa Military Sub-District - one regiment

(3) Na-ch'u Military Sub-District - one regiment

(4) Northern Ch'ang-tu Military Sub-District - one regiment

(5) Northern Lin-chih Military Sub-District - one regiment

c. Administrative and Transportation Forces

Assuming that civilian transport and administrative activities continue to supplement the military supply effort, it is considered that the two Motor Transport regiments and 5,000 miscellaneous and administrative troops now in Tibet would be sufficient to meet all necessary requirements after reinforcement for the "Probable*" attack, but in the event of a "Maximum"* attack an additional Motor Transport regiment would be required for distribution of supply in the forward areas.

4. Forces Currently in Tibet and Reinforcement Requirements

From the following table it would appear that, after meeting requirements for Theatre Reserve, Internal Security, Administrative, and Transport Forces, it will be necessary for the CCA to reinforce Tibet for the "Maximum"* attack by:

Five light infantry divisions

18 light infantry regiments

One Motor Transport regiment

for the "Probable"* attack by:

Five light infantry regiments

*See Section VIII para. 6. e and g.

TAB "A"

Formations/ Units	(1) Forces Adjacent to the Sino-Indian Frontier 1 Jan 64	(2) Forces Necessary for Administration and Transportation (Para 3c above)	(3) Forces Necessary for Internal Security (Para 3b above)	(4) (5) Forces Used in the Attack (Para 2 above)		(6) (7) Necessary Theatre Reserve Forces (Para 3a above)		(8) (9) Reinforcements Required for Attack	
				Max	Prob	Max	Prob	Max	Prob
a Miscellaneous Troops	5 000	5 000							
b Standard Infantry Divisions	5			2					
c Light Infantry Divisions				7	3	1		5 (Three available from line b.)	
d Independent Regiments (Inf Arty Cav-but exc Engr)	12			20	15	11	9	18 (one available from line 3.)	5 (Six available from line b.)
e Border Defense and IS Regiments	6		5						
f Motor Transport Regiments	2	2		3				1	

5 Ground Supply Requirements and Stockpile Capacities

The total ground force supply requirement varies directly with the number of troops in Tibet and the proportion of these troops engaged in attacks. The requirements are:

a Prior to reinforcement and before attack

Appendix "D" details the supply requirements for troops currently in Tibet at 570 short tons per day

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b After reinforcement and during the attack

(1) From Appendix "E" it will be seen that there would be a continuing surplus tonnage delivered at MSR termini after reinforcement, and that after twelve months stockpiling levels after the first month of the offensive would be approximately:

Western MSR	June	149 760 short tons
Central MSR	October	35 400 short tons ("Maximum")*
		169 620 short tons ("Probable")*
Eastern and Northeastern MSRs	October	218,560 short tons

(2) These stockpile figures should be regarded with caution because not only do they only allow for one years stockpiling but we are unable to calculate with any accuracy the tonnages the Chinese will require for:

(a) Maintenance of the long MSRs and the staging points on the MSRs

(b) Maintenance of the poor roads leading to the frontier with India and Nepal

(c) Maintenance of many of the facilities which remain to be identified from existing photography

(3) Though these stockpile figures probably overestimate Chinese capability they do indicate that:

(a) Although the Chinese could concentrate sufficient troops to launch simultaneous attacks along the frontier in maximum strength, they could not in the area supplied from Lhasa sustain operations at this level on a one year stockpile and while they might achieve their initial objectives they could not support troops in combat at all the objectives for more than a very short time.

(b) At the "Probable" level of attack (See Section VIII para 6.g.) the Chinese would have ample margin of supply reserves and could sustain operations indefinitely the restriction here being the difficulty of moving supply throught the Himalayas to forward troops rather than of stocking the main and forward supply depots in Tibet

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(4) Supply Support to the CCAF

(a) It has been estimated that current supply requirements for the CCAF and civil air services in Tibet is:

at Ho-Tien/So-che	2 short tons per day
at Lhasa	2 short tons per day
at So che	2 short tons per day

(b) It has been assumed that over a twelve month period the CCAF would stockpile a 90 day reserve at airfields.

(c) Stockpiling and normal supply requirements would require the following tonnages from ground supply sources:

at Ho-Tien/So-che	23 short tons per day
at Lhasa	85 short tons per day
at Yu shu	10 short tons per day

(d) From Appendix "E" it is apparent that supply at the level shown in para 6 c above would be available.

(e) At maximum operating level (See Section VII para 3) it has been estimated that the CCAF would require the following daily supply from ground sources once the attacks began:

at Ho-Tien/So-che	76 short tons per day
at Lhasa	330 short tons per day
at Yu shu	52 short tons per day

(f) From Appendix "E" it is apparent that at the "Maximum" attack level (See Section VIII para 6 g) the Chinese could only make sufficient tonnage available at Lhasa at the expense of ground operations. At the "Probable" level of air operations (See Section VII para 4) only 49 tons per day would be required at Lhasa which would be well within Chinese capability.

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VII. CCAF OFFENSIVE AND SUPPORT CAPABILITIES

1. Factors Affecting Air Operations

a. Six major factors would influence a Chinese decision to employ the CCAF in offensive operations against India.

(1) The difficulties of providing logistic support to airfields close to the frontier.

(2) The Chinese can only operate jet aircraft from two airfields close to the Sino-Indian frontier, namely LHASA (TANG-HSIUNG) and YU-SHU. NAGCHHU DZONG airfield is currently unserviceable due to a major washout of the runway. The runway could be repaired in a relatively short time. The Chinese have no airfields in the western area which can accommodate jet aircraft.

(3) The altitude of airfields restricts the payload/range of aircraft.

(4) To Chinese disadvantage the Indian Air Force has numerous airfields suitable for fighter aircraft, at low altitudes, close to the frontier, from which they could, given sufficient tactical aircraft, operate with greater aircraft efficiency into Tibet while enjoying better radar support.

(5) The Chinese have good radar detection, identification, and tracking capabilities in the eastern and western sectors. However, in the central area south of Lhasa where their ground force capability is highest, their radar capability is poor.

(6) Due to the monsoon climate over eastern Tibet and Assam, tactical air operations in support of ground forces are only possible for five months in each year.

b. In these circumstances it is probable that the Chinese would wish to avoid committing the CCAF to offensive air operations. As a precaution against India taking offensive air action, it is highly likely that the Chinese would, before an attack on India, stockpile supplies at Tibetan airfields, and move fighter, fighter-bomber, and bomber aircraft to bases close to the railheads. From these bases aircraft could be redeployed at very short notice to So-che,

25X1

Ho-tien Lhasa Nagchhu Dzong and Yu-shu.

c. In the event of a major attack on India, tactical air supply to troops operating in remote areas would be of great importance. Before attack redeployment of a modest number of transport aircraft to forward airfields would be likely.

d. Aircraft range-radii are shown on overlay 5 to Map No. 2.

2. Tactical Air Supply

Assuming that the distribution of tactical air supply will be commensurate with the scale of ground operations, it is estimated that the Chinese would deploy the numbers of aircraft with the capabilities and logistic requirements shown below:

(1) Airfield	(2) No. and type of aircraft	(3) Sorties per day	(4) Tons air-dropped per day	(5) Daily re-supply requirement short tons
(a) Ho-tien	4 IL-14/CRATE	1-2 ea	6-12	7
(b) Lhasa/Nagchhu Dzong	12 IL-14/CRATE OR IL-12/COACH	1-2 ea	18-36	22

3. Maximum Offensive and Defensive Capability

a. General

(1) The Chinese could probably deploy 175 tactical aircraft (90 jet fighters 25 jet light bombers and 60 prop-light bombers) to forward airfields near the Sino-Indian frontier for attacks on India.

(2) With 175 tactical aircraft the Chinese could fly about 170 sorties per day (60 ground support 110 fighter)

(3) In addition the Chinese could use 15 TU-4 bombers from bases in Central China to bomb targets at Calcutta New Delhi and possibly Bombay, but they would be operating outside the range of fighter cover.

b. Logistics

It is estimated that the Chinese could support the following maximum numbers of aircraft from the airfields listed for operations against India:

 25X

(1) Airfield	(2) No of Aircraft	(3) Tonnage Required Per Day (in short tons)
(1) LHASA (TANG-HSIUNG) or NAGCHHU DZONG	60 MIG 15/17	104
	20 TU-2	43
	25 IL-28	186
	12 IL-14 CRATE OR IL-12 COACH	22
TOTAL	117 Aircraft	355
(2) YU-SHU	30 MIG 15-17	52
(3) HO-TIEN	20 TU-2	43
	IL-14 CRATE	7
TOTAL	24 Aircraft	50
(4) SO-CHE	20 TU-2	43

c. The Chinese will probably hold the 13th Air Division in reserve as the air lift for the 1st Airborne Division CCA. With other available transport aircraft they could supply airfields in the Tibetan area as shown below:

(1) Base	(2) No of Aircraft and Type	(3) Airfield Supplied	(4) Short Tons Delivered Daily
(1) CHIENG-TU/ HSI-NING	35 IL-14/CRATE) 25 LI-2/CAB)	LHASA	25
(2) KASHGAR	40 AN-2/COLT	HOTIEN/ SO-CHE	17

d. From the above it will be seen that if operating at maximum capability the Chinese would require the following tonnages delivered to airfields from ground supply sources.

(1) Airfield	(2) Tonnage Requirement at Maximum Operating Capability (per day)	(3) Tonnage Delivered by Air (per day)	Tonnage Delivered by Road (per day)
(1) LHASA	355	25	330
(2) HO-TIEN	50)	1[illegible]	76
(3) SO-CHE	43)		

4. Probable Level of Operation

a. We believe it most unlikely for the reasons given in para 1, that China would initiate major offensive air operations against India. We would expect the CCAF to give tactical air supply to attacking ground troops and

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to provide fighter air defense for the area, but not to use aircraft for tactical air support of ground troops nor to attack targets deep in India.

b. To provide air defense and tactical air supply we would expect the Chinese to deploy aircraft and provide air transported supply to airfields as shown below:

(1) Airfield	(2) No. of Aircraft and type	(3) Daily Maintenance Requirement	(4) Tonnage Delivered Air Transport Short Tons Per Day	(5) Tonnage Delivered by Road Short Tons Per Day
(1) LHASA (TANG-HSIUNG)/ NAGCHHU-DZONG	30 MIG 15/17 12 IL-14/CRATE or IL-12/COACH	52) 22)	25	49
(2) YU-SHU	30 MIG 15/17	52	--	52
(3) HO-TIEN or SO-CHE	4 IL-14 CRATE	7	7	--

5. Airborne Operations

a. The Sino-Indian frontier is generally unsuited to parachute troops. The only objective which we consider at all possible for an airborne operation is Katmandu Airfield which could be captured by the Chinese in order to forestall Indian occupation of the capital and its valley.

b. Staging through Cheng-hsien, Honan Province, and Lhasa the Chinese could with the 13th Air Division drop two infantry airborne battalions of the 1st Airborne Division into Katmandu with an initial lift of:

34 IL-14/CRATE or IL-12/COACH

26 C-46

c. Subsequent to the initial drop, the Chinese could airland one infantry regiment in the following two days and the remainder of the light infantry division within four to five weeks.

VIII. MAXIMUM CAPABILITY OF THE CHINESE TO ATTACK INDIA AND NEPAL OVER THE HIMALAYAS AND THE LOCATION AND TIMING OF SUCH AN ATTACK

1. Introduction

Chinese military objectives and capabilities are examined in the western area (Ladakh), the central area (Nepal) and the eastern area (the Chumbi Valley, Bhutan, and NEFA).

2. Access Routes

Access routes into India severely limit the size of the ground force the Chinese can employ to attack India. The following access routes are considered:

a. Western Area (Ladakh)

Daulat Beg Oldi	to Panamik
Chushul	to Leh
Shipki La (pass)	to Chini
Mana La (pass)	to Joshimath
Lapulek La (pass)	to Dharchula

b. Central Area (Nepal)

Kojarnath	to Bajang
Namashi	to Dana
Kyirong Pass	to Nawakot
Kodara Pass	to Dolaghat
Rakha La (pass)	to Dingla
By air	to Katmandu

c. Eastern Area (Bhutan and NEFA)

Frontier	to Siliguri
Pha: Dzong	to Paro Dzong
Chakhang Dzong La	to Lhuntsi Dzong
Bum La	to Gauhati area
Bum La	to Tezpur area
Longju	to Rajja (Subansiri Valley)
Li ma	to Dening

3. Western Area

a. Daulat Beg Oldi to Panamik

(1) It is assumed that the initial objective for a Chinese Communist attack in this area would be Panamik. From here Indian access to all of north-western Ladakh could be denied.

(2) There are several staging areas on the Ladakh Road to Daulat Beg Oldi. From Daulat Beg Oldi to Panamik however the net route capacity is less than 50 short tons per day during the best season June-November (see Appendix "G"). The route is often difficult during the rest of the year because the Saser Pass is frequently closed by snow. If the Shyok and Nubra river valleys were occupied by

the Chinese by an attack from the Chushul area they could then supply troops at Panamik via the Nubra valley road from Chushul during the winter as necessary. Some road construction would be required to improve the track through the Saser Pass and Karakoram Range but the ground in this area makes such construction relatively simple.

(2) It is considered that in the summer the Chinese could support one light infantry regiment at Panamik by a daily supply of 17 tons* from staging areas along the Ladakh Road. The most likely time for the Chinese to attack in the Daulat Beg Oldi area would be May or June.

b. Chushul to Leh

(1) The aim of a Chinese Communist attack on Leh would probably be to deny Indian access to all eastern Ladakh, to capture a forward airfield, and to support, in part, a simultaneous attack on Panamik.

(2) Supply to Chushul is from the staging area at Rudog. This route has a capacity of between 700 and 800 tons per day as far forward as Spanggur. From Spanggur to Chushul, a distance of about 10 miles, the road deteriorates to a jeep track. From Chushul to Leh the road has a capacity of between 100 and 70 tons per day. (Appendix "G")

(3) In order to support one light infantry division (72 tons per day) with two regiments at Leh, and one regiment in the Tirit area of the Shyok River Valley as well as a minimum of support during the winter months for the light infantry regiment at Panamik (10 tons per day), it would be necessary to stockpile in the Rudog area and to improve the road from Spanggur to Chushul. Given sufficient engineer support for road improvement, the maintenance of one light infantry division in this area would be within Chinese Communist capabilities. The most likely time for the Chinese to begin an attack would be June.

c. Shipki La (pass) to Chini

(1) The aim of a Chinese Communist attack on Chini would probably be to pose a threat to New Delhi.

* See Annex 2 for daily resupply requirements for Chinese Communist Army Units.

(2) An attack through Shipki La would probably be supplied from a staging area at Gartok approximately 100 miles away. The capacity of this route as far as the frontier is between 170 and 430 tons per day. From Shipki La to Chini (25 miles) the maximum capacity is 50 tons per day. During the winter months Shipki pass which is very narrow is frequently blocked by snow drifts which would limit porter movement.

(3) It is estimated that between June and November the Chinese could support up to two light infantry regiments at Chini (34 tons per day) from the staging area at Gartok. During the winter months it would probably be necessary to withdraw these forces. The most likely time for an attack would be June.

d. Mana La (pass) to Joshimath

(1) The aims of a Chinese Communist attack on Joshimath would probably be to pose a threat to New Delhi and to destroy the Indian garrison at Joshimath.

(2) An attack through this pass would probably be supplied from the staging area at Gartok approximately 120 miles away. The maximum capacity of this track is slightly less than 50 tons per day. From Mana La the trail to Joshimath has a maximum capacity of 50 tons per day. During the winter months however the pass is frequently blocked by snow drifts which would limit porter movement.

(3) It is estimated that between June and November the Chinese could support up to two light infantry regiments at Joshimath (34 tons per day) from the staging area at Gartok. During the winter it would probably be necessary to withdraw both these regiments due to supply difficulties through the passes. The most likely time for an attack would be June.

e. Lipulek La (pass) to Dharchula

(1) The aim of a Chinese Communist attack on Dharchula, as in the case of an attack on Chini and Joshimath above, would probably be to pose a threat to New Delhi.

(2) An attack from Lipulek La would probably be supplied from the staging area at Barkha approximately 60 miles distance. The capacity of the

Barkha - Lipulek La road is between 600 and 500 tons per day, and that of the Lipulek La - Dharchula track 50 tons per day. From December to May Lipulek pass is periodically blocked by snow.

(3) Between June and November, up to two light infantry regiments requiring 32 tons per day could be supported at Dharchula from the staging area at Barkha. During the winter months it would probably be necessary to withdraw this force. The most likely time for a Chinese attack would be June.

4. Central Area

a. The initial aim of a Chinese Communist attack on Nepal would be:

(1) To forestall Indian intervention by blocking the road from India to the Katmandu Valley.

(2) To establish a corridor from Tibet into the Katmandu area for the movement of supply.

(3) To occupy the principal valleys in order to establish supply routes from Tibet and bases for subsequent expansion.

b. At present no roads from Tibet enter Nepal. Though there are at least 25 caravan trails into Nepal, only five of these may be regarded as principal trails on which the Chinese can motor close to the frontier. The Chinese Communists are able to make rough jeep tracks from existing road heads on these trails to the Nepal frontier, but south of the frontier they must rely on porters and pack animals.

c. Khojarnath to Bajang

(1) The aim of a Chinese attack on Bajang would probably be to establish a forward base from which, in conjunction with an attack on Dharchula (see para 3 e above), Indian intervention in western Nepal could be limited.

(2) An attack from Khojarnath would probably be supplied from the staging area at Taklakhar approximately 20 miles distance. The capacity of this route is between 200 and 250 tons per day up to the frontier. From

Khojarnath to Bajang the maximum capacity is 50 tons per day (see Appendix "G"). During the winter months however this trail may be temporarily blocked by snowdrifts impeding porter movement.

(3) It is estimated that, between late September and December, the Chinese could support one light infantry regiment at Bajang (17 tons per day) from the staging area and that they could in this time stockpile sufficient supply at Bajang to make good winter short-falls in delivery. Late September would be the most likely time for the Chinese to attack.

d. Namashi to Dana

(1) The initial aim of a Chinese Communist attack on Dana would probably be to establish a forward supply base close to the road head at Pokhara on the lateral road to Katmandu in order to support subsequent operations in the Baglung/Syangja area.

(2) An attack from Namashi would probably be supplied from the staging area at Tradum 30 miles away. The capacity of this route is between [illegible] and [illegible] tons per day to the frontier. From Namashi to Dana the maximum capacity is 50 tons per day (see Appendix "G"). During the winter months, however this trail may be temporarily blocked by snowdrifts.

(3) It is estimated that, between late September and December, the Chinese could support one light infantry regiment at Dana (17 tons per day) from the staging area at Tradum and could in this time stockpile sufficient supply at Dana to make good winter short-falls in delivery. Late September would be the most likely time for the Chinese to attack.

e. Kyirong Pass to Nawakot

(1) The initial aim of a Chinese Communist attack on Nawakot would probably be to establish a corridor in conjunction with an attack on Dhulikhel (see para f below) for the movement of supply to the Katmandu Valley.

(2) An attack through the Kyirong Pass would probably be supplied from the staging area at Jongkha Dzong approximately 60 miles distance. The capacity of this route is between 500 and 420 tons per day to the frontier. From the frontier to Nawakot the maximum capacity is 50 tons per day (see Appendix "G"). During the winter months, however this trail may be temporarily blocked by snow drifts.

(3) It is estimated that between late September and December, the Chinese could support one light infantry regiment at Nawakot (17 tons per day) from the staging area at Jongkha Dzong and could in this time, stockpile sufficient supply at Dana to make good winter short-falls in delivery. Late September would be the most likely time for the Chinese to attack

f. Kodari Pass to Dhulikhel

(1) The initial aim of a Chinese Communist attack on Dhulikhel would probably be to establish a corridor in conjunction with an attack on Nawakot for the movement of supply to the Katmandu Valley.

(2) An attack through the Kodari Pass would probably be supplied from the staging area at Tingri Dzong some 80 miles away. The capacity of this road is between 500 and 420 tons per day to the frontier. From the Kodari Pass to Dhulikhel the maximum capacity is 50 tons per day. (See Appendix "G") During the winter months however this trail may be temporarily blocked by snow drifts

(3) It is estimated that between late September and December, the Chinese could support one light infantry regiment at Dhulikhel (17 tons per day) (see Annex "2") from the staging area at Tingri Dzong, and could, in this time stockpile sufficient supply at Dhulikhel to make good winter short-falls in delivery. Late September would be the most likely time for the Chinese to attack

g. Rakha La (pass) to Dingla

(1) The initial aim of a Chinese Communist attack on Dingla would be to establish a forward base from which further expansion could be supported.

(2) An attack through Rakha pass would probably be supplied from the staging area at Sar approximately 35 miles distance. The capacity of this route is between 490 and 420 tons a day up to the frontier. From the frontier to Dingla the maximum capacity is 50 tons per day (see Appendix "G"). During the winter months however this trail may be temporarily blocked by snowdrifts.

(3) It is estimated that, between late September and December, the Chinese could support one light infantry regiment at Dingla (17 tons per day) (see Annex "B") from the staging area at Sar and could in this time, stockpile sufficient supply at Dingla to make good winter short-falls in delivery. The most likely time for an attack would be late September.

h. Katmandu

(1) The Chinese could drop two airborne battalions in the Katmandu area. After the capture of the airfield at Katmandu the Chinese could airland one light infantry regiment in the following three days and the remainder of one light infantry division within four or five weeks.

(2) The initial aim of a Chinese Communist attack on Katmandu would probably be to establish a road block across the road from India to the Katmandu Valley in order to forestall Indian intervention.

(3) Air operations would probably be staged out of Lhasa.

(4) It is estimated that the Chinese could support one light infantry division (72 tons per day) and two airborne battalions (10 tons per day) in the Katmandu area from airfields in Sinkiang and Tibet for an indefinite period, so long as they retained air superiority in the Katmandu area.

5. Eastern Area

a. Frontier (Chumbi Valley) to Siliguri

(1) The initial aim of a Chinese Communist attack through the Chumbi Valley would probably be to cut Indian communications with Assam by capturing the Siliguri communications bottleneck. (see Map).

(2) The attack would be launched from the staging area at Yatung. The initial attack could be launched on one of two possible axes: (a) on the frontier roads through the Jelep and Natu passes which are strong Indian defensive positions; or (b) if prepared to violate Bhutanese neutrality, the initial attack could be made through the Torsa River valley thus turning Indian defensive positions north of Darjeeling. In either case, the capacity of the roads from the frontier to Darjeeling and Kalimpong would determine the size of the force which could be supported on the plains at Siliguri.

(3) Any Chinese Communist attacking force which moved out of the Himalayas would probably be met on the plains by Indian armor. It is, therefore assumed that although the Chinese would employ light infantry divisions in the Himalayas they would use conventional infantry divisions, with some armored support on the plains.

(4) The following are the route capacities on the several stages of the Frontier-Siliguri Route (Annex "1"):

(a) Frontier to Gangtok - 480-410 tons per day - 34 miles

(b) Gangtok to Darjeeling - 810-720 tons per day - 67miles

(c) Darjeeling to Siliguri - 2070-1830 tons per day - 30 miles

(5) The Chinese are capable of supporting an initial attack by three light infantry divisions (216 tons per day) and two standard divisions (210 tons per day)

(6) During winter months it would be very difficult for the Chinese to support more than one standard infantry division in this area, and it would probably be necessary to pull back to the Darjeeling-Kalimpong area.

(7) The most advantageous time for the Chinese to start an attack would be in late September

b. Phari Dzong to Paro Dzong

(1) If prepared to violate Bhutanese neutrality, the Chinese could attack over a trail going from Phari Dzong in Tibet through western Bhutan to join the road connecting Paro Dzong, Bhutan, to Hasimara, India.

(2) The probable aim of this attack which could be supported concurrently with an attack through the Chumbi Valley, would be to protect the flank of forces attacking in the Chumbi Valley.

(3) The attack would probably be supported from the staging area at Phari Dzong. The maximum capacity of the trail from Phari Dzong to Paro Dzong is 50 tons a day

(4) It is estimated that, between late September and December, the Chinese could support one light infantry regiment at Paro Dzong (17 tons per day)

(5) We do not believe that the Chinese could carry this attack to

capture the Indian airfield at Hasimara, but they probably could move a short distance south of Paro Dzong. The most favorable time for the Chinese to attack would be late September.

c. Lhakhang Dzong to Lhuntsi Dzong

(1) The probable aim of an attack in this area, were the Chinese Communists prepared to violate Bhutanese neutrality, would be to protect the flank of forces attacking through Bum La to the Gauhati area (see para d).

(2) The attack would probably be supported from the staging area at Lhakhang Dzong. The maximum capacity of the trail from Lhakhang Dzong to Lhuntsi Dzong is 50 tons per day.

(3) It is estimated that between late September and December the Chinese could support one light infantry regiment at Lhuntsi Dzong (17 tons per day).

(4) The most favorable time for the Chinese to attack would be late September.

d. Bum La to Gauhati

(1) The probable aim of an attack in this area, if the Chinese were prepared to violate Bhutanese neutrality, would be to sever Indian communications with eastern Assam by establishing a salient north of the Brahmaputra River and east of the Manas River to tributaries in the area of Gauhati.

(2) The following are the route capacities and distances of the routes from Bum La into India (Appendix "G").

(1) Routes		(2) Short Tons per day	(3) Distances
(a)	Bum La to Towang	420-350	20 miles
(b)	Towang to Bomdi La	100-80	70 miles
(c)	Towang to Tash Gang Dzong	50-40	30 miles
(d)	Tashi Gang Dzong to Dewangiri	140-110	80 miles
(e)	Dewangiri to Gauhati	500-420	55 miles

(3) All the above routes lose about 20 percent of their maximum capacity during the monsoon months (June-September) (Appendix "G"); in addition the pass at Bum La may be closed to vehicles for short periods in winter due to snowdrifts, restricting movement to porter convoys.

(4) A Chinese attack on Gauhati by a considerable force would have to be in two phases because of the present low capacity of the Towang-Tashi Gang Dzong road section.

Phase I. An attack from Bum La to establish defensive postions at Tashi Gang Dzong and Bomdi La, each of two light infantry regiments (34 tons)

Phase II After improving the trail from Towang to Tashi Gang Dzong to a probable 250 tons per day capacity, continued attack to establish a salient on the north bank of the Brahmaputra River in the Gauhati area.

(5) This attack might be supported by a diversionary attack against the Indian defenses in Sikkim.

(6) The most favorable time for the Chinese to attack would be late September. If the trail from Towang to Tashi Gang Dzong could be improved in time for the establishment of the salient before December, it would probably be possible to maintain up to two light infantry divisions (144 short tons) in the Gauhati area during the winter and monsoon months, provided adequate stockpiles had been moved into the forward areas during the autumn and winter. It would, however, be a difficult operations, and it is believed that the Chinese would only attempt it as part of an attack to take the whole part of NEFA and Bhutan claimed by China or to take all of Assam with simultaneous attacks from Burma.

e. Bum La to Tezpur

(1) The probable aim of a Chinese attack to Tezpur would be to sever Indian communications with eastern Assam.

(2) An attack from Bum La would probably be supported from a staging area at Tsona Dzong. The maximum capacities and distances of forward routes are:

(1) Routes	(2) Short tons per day	(3) Distances
(a) Bum La to Towang	420-350	20 miles
(b) Towang to Bomdi La	100-80	70 miles
(c) Bomdi La to Tezpur	420-300	110 miles

(3) If the Chinese were to repeat their 1962 attack from Bum La through Towang and Bomdi La toward Tezpur, it is estimated that they could support the following troops:

(a) At Towang - up to four light infantry divisions (288 tons)

(b) At Bomdi La - one light infantry division (72 tons)

(c) At Tezpur - one light infantry division (72 tons)

f Longju to Rajla (Subansiri Valley)

(1) The aim of an attack in this area would probably be to occupy the Subansiri Valley as part of a general invasion of Assam.

(2) There are no roads in this area, and an attack by the Chinese would be restricted to a distance over which porter supply could be operated. At a maximum the Chinese could support two light infantry regiments (34 tons per day) in this valley 30 to 40 miles south of the frontier. Between December and March one regiment would have to be withdrawn. Supply would be from the staging area at Longju. The most favorable time for the Chinese to attack would be late September.

g Li-ma to Dening

(1) The probable aim of an attack in this area would be to occupy the eastern part of NEFA claimed by the Chinese and to build a road into the Assam Valley giving access to Indian communications south of the Brahmaputra River, thereby opening a new area for future operations.

(2) The present track from Li-ma to Dening has a maximum capacity of 50 tons per day. It loses 20 percent of its capacity during the monsoon (June-September), but only 10 percent in winter.

(3) It is estimated that the Chinese could initially support two light infantry regiments (34 tons per day) at Tepang. Subsequent to the development of a road with a capacity of 150 tons to Tepang (estimated construction time 8-10 weeks), the Chinese could support two light infantry

divisions in this area (144 tons per day), and advance two regiments to Balamaghani.

(4) Winter would not curtail Chinese operations in this area, but the monsoon would probably preclude an offensive. The most advantageous time for an attack would be late September.

6. Conclusions

a. The capacities of the cross-frontier routes limit the strength of ground forces China can deploy on any one route.

b. In Section V we estimated that China could provide both the fuel and the vehicles to operate the MSRs to the Sino-Indian frontier area to capacity.

c. The total input of supply to the frontier area from the four MSRs (1860-1350 tons per day) is more than would be required for simultaneous attacks in all areas (1050 short tons per day); however, because the major avenues of attack would be supplied from the Lhasa area and the central MSR, it is doubtful if China could sustain simultaneous attacks upon India and Nepal. Further, we doubt that China could sustain simultaneous attacks on India both in the Chumbi Valley area and to Gauhati.

d. Total force strengths are shown below:

(1) Area	(2) Attack Strength	(3) Men	(4) Daily Re-supply Requirement Short Tons	(5) Daily Supply Available by Road
SIMULTANEOUS ATTACK ON INDIA AND NEPAL				limited by
(1) West	One lt inf div) 7 lt inf regets)	29,300	191	320-230
(2) Center (Nepal)	One lt inf div) 5 lt inf regts)	24,100	157	
(3) East	5 lt inf divs) 2 std inf divs) 20 lt inf regts)	99,900	706	1540-1120
(4) Total	7 lt inf divs) 2 std inf divs) 20 lt inf regts)	153,300	1,054	1860-1350
SIMULTANEOUS ATTACKS ON INDIA ALONE				
(5) West	one lt inf div) 7 lt inf regts)	29,300	191	320-230

(1) Area	(2) Attack Strength	(3) Men	(4) Daily Re-supply Requirement Short Tons	(5) Daily Supply Available by Road
(6) East	5 lt inf divs) 2 std inf divs) 8 lt inf regts)	99,900	706	1480-1220
(7) Total	6 lt inf divs) 2 std inf divs) 15 lt inf regts)	129,200	897	1800-1450
SIMULTANEOUS ATTACKS ON INDIA (ATTACK ON GAUHATI but not in CHUMBI VALLEY				
(8) West	one lt inf div) 7 lt inf regts	29,000	191	320-230
(9) East	Two lt inf divs) 8 lt inf regts)	43,000	280	1480-1220
(10) Total	3 lt inf divs) 15 lt inf regts)	72,300	471	1800-1450
SIMULTANEOUS ATTACKS ON INDIA (ATTACK IN CHUMBI VALLEY but not to GAUHATI				
(11) West	One lt inf div) 7 lt inf regts)	29,000	191	320-230
(12) East	3 lt inf divs) 2 std inf divs) 6 lt inf regts)	72,500	528	1480-1220
(13) Total	4 lt inf divs) 2 std inf divs) 13 lt inf divs)	101,800	719	1800-1450

e. The theoretical maximum number of troops that the Chinese could deploy for simultaneous attacks on India and Nepal is therefore: seven light infantry divisions, two standard infantry divisions, and twenty light infantry regiments.

f. A more realistic assessment, short of maximum, of the number of troops the Chinese might employ, if they did not attack Nepal, but delivered the major attack against India in the Gauhati-Tezpur area with only a feint in the Chumbi Valley area, would be: three light infantry divisions and fifteen light infantry regiments.

g. The most favorable weather conditions for initiation of these attacks begins in late September or early October, depending on the duration of the wet monsoon. (Appendix C).

IX. INTERDICTION TARGETS

The targets listed in Appendix "A" are considered to be essential to the Chinese Communist supply system for support of operations in Tibet. Destruction of these targets would greatly reduce the Chinese offensive capability in the Sino-Indian/Sino-Nepalese Frontier areas.

1. Railroads

a. The rail line west of Lan-chou is vulnerable to interdiction near Ho-k'ou-nan. Near there several multi-span railroad bridges cross the Yellow, Huang-shui, and Chuang-lang Rivers. Destruction of two eight-span bridges (Targets A'-1 and A'-2) would sever all rail communications to Urumchi and Hsining from Lan-chou.

b. The rail line from northeastern China to Lan-chou now has a branch from Kan-tang-tzu to Wu-wei which by-passes Lan-chou. This line is vulnerable at the 2,475-foot bridge east of Wu-wei (A-27) and the small Kan-tang-tzu rail classification yard (A-28).

c. Destruction of the west Lan-chou rail classification yards (Target A'-3) in conjunction with the targets mentioned above would stop all rail supply to the central MSR.

d. Destruction of the rail classification yards at Ch'eng-tu (Target A'-4) and Mien-yang (Target A'-5) would greatly reduce, but not stop completely, supply to the eastern MSR for a considerable period.

2. Rail-to-road Transshipment Points

Supplies to Tibet are off-loaded onto trucks at railheads at Ch'eng-tu, Hsi-ning, Hung-liu-yuan and Urumchi. Destruction of these transloading points would disrupt Chinese supply efforts until alternate off-loading points could be established.

a. The Ch'eng-tu transshipment point (Target A'-22) is the initial point of the eastern MSR into Tibet and the western terminus of the Chinese standard-gauge rail system in Szechwan Province.

b. The Hsi-ning transshipment point (Target A'-23) is reached by a short rail line from Lanchou. Although the rail line is paralleled by a road which can carry goods from Lan-chou, most materiel destined for the central and northeastern MSRs is trans-loaded at Hsi-ning.

c. The Hung-liu-yuan transshipment point (Target A'-24) is the initial point of the northern branch of the central MSR which joins the road from Hsi-ning at Golmo and thence to Lhasa. Communications intercept indicates that a considerable

proportion of the materiel transported on the central MSR originates at Hung-liu-yuan, and photography shows transloading and storage facilities there.

d. The Urumchi transshipment point (Target A'-25) is the present terminus of the cross-China Lung-hai standard-gauge rail line. Supplies for the Aksai Chin road (Western MSR) are transloaded at Urumchi. Turfan, about one hundred miles east of Urumchi and used for this purpose prior to completion of the railroad as far as Urumchi, still handles a smaller proportion of the traffic, and would probably assume the full load in the event of the loss of this point.

e. The Turfan transshipment point (Target A'-26) remains an alternate to Urumchi.

3. Main Supply Routes

a. The central MSR could be cut off from Lanchou by destruction of an important highway bridge (Target A'-10) over the Yellow River on the Lan-chou-Hsi-ning road. Loss of this bridge, if combined with the destruction of the corresponding railroad bridges (Target A'-1 and A'-2) would cut off the central MSR from Lan-chou. Interdiction of the 1,300 foot concrete-deck bridge (A-29) just north of Golmo would diminish the usefulness of the road from Hung-liu-yuan.

b. The eastern MSR, which communications intelligence has clearly shown to be the most difficult MSR for the Chinese Communists to keep in operation because of the many large rivers, difficult terrain, and monsoon weather, could be temporarily cut by the destruction of a one-thousand foot, one-lane stone deck-type bridge (Target 2'-11) over the Min Chiang (river) just southwest of the Ch'engtu railhead. The same purpose could be accomplished by destruction of two key suspension bridges jut to the west on the same MSR (Targets A'-12 and A'-13). Destruction of another suspension bridge and a bridge-and-tunnel juncture further west (Targets A'-14 and A'-15) would further isolate the Lhasa supply complex, presuming the simultaneous destruction of targets affecting the central MSR.

c. The western MSR, constructed over the Tibetan plateau, is vulnerable to interdiction only at the 2,000-foot wooden bridge/causeway over Yarkand River.

This MSR could however, be deprived of its usefulness by cutting off the Lanchou-Urumchi rail line as indicated in para 1 above unless supplies were forwarded from the Soviet Union from railheads at Druzhba, Ryebachye, or Osh

4. POL

a. There are no oil refineries in Tibet. POL supplies to the area come from refineries at Lanchou (Target A -6), Yumen (Target A'-7), Leng-hu (Target A -8), and Tu-shan-tzu (Target A -9). The largest of these refineries is at Lanchou. These four refineries (of the eight identified in China) represent over half of the total Chinese oil refining capacity. Destruction of these refineries and product tank storage areas would restrict POL consumption in Tibet to existing stocks in drum storage. In addition to affecting operations in Tibet, loss of these four refining centers would have serious consequences for China's overall industrial base. (See Tab "I")

5. Logistical Facilities

a Vehicle Maintenance Facility

The Central Transportation Headquarters facility for Tibet (Target A -16) which is located in the western portion of Lhasa, is the largest vehicle maintenance plant located to date in Tibet. The extensive expansion of this facility since 1960 and the activity noted there on 1963 photography indicate the importance of the installation. Loss of this facility would severely handicap the Chinese forward supply effort both in the central area and in the western portion of NEFA. The facility had, in October 1963, approximately 140 buildings and numerous sheds, with additional buildings under construction, and there were 174 trucks in the area.

b Ammunition Depot

The Lhasa West Ammunition Depot (Target A -17) is located on the western edge of Lhasa. Although small in comparison to similar installations elsewhere in China, it is an important ammunition dump for Tibet. Loss of the depot would deprive the Lhasa military headquarters complex of its largest known local reserves of ammunition.

25X1

c. Military Installations

(1) Lhasa Depot Complex

The Lhasa area is the site of the largest logistical facilities complex in the Tibet area. Newer Chinese Communist civilian administrative facilities are intermingled with military installations in the capital city area (Target A*-18). The civil and military facilities have been greatly enlarged over the past three years and approximately 400 vehicles were observed in the area in October 1963. Lhasa is also the site of the Tibet Military Region Headquarters. Serious damage to this center would virtually curtail the logistic support of Chinese troops in the central sector and in the western portion of NEFA.

(2) Tsethang General Supply Depot (Target A-19)

This installation is believed to supply Chinese units in the Towang/Bum La and Longju areas. Loss of this depot would temporarily curtail supply.

(3) Gyangtse Military Complex (Target A-20)

The Gyangtse Supply Depot is believed to supply units in the Chumbi Valley area. Loss of this base would temporarily curtail supply.

(4) Zhikatse Military Complex (Target A-21)

The headquarters of the 11th Infantry Division and the divisional supply depots are at Zhikatse. Loss of this complex would temporarily deprive the 11th division of supply.

NOTE: * Targets numbered following the designation A-prime (A') are considered to be the most vital targets. Those numbered following the letter A alone are targets of lesser importance. The single area-type target (Lhasa Depot Complex is desingated by an asterisk (A*).

X. INTELLIGENCE GAPS

1. General

a. There are significatn intelligence gaps in the military and logistics sections of this study with the exception of the location of Chinese airfields. These gaps exist because the remoteness of the area limits the effectiveness of collateral and communications intelligence sources, and because overhead reconnaissance coverage of the area has been infrequent and has not been fully exploited for military targets other than airfields.

b. Collateral efforts generally have not been productive of important military intelligence on Tibet, and the accuracy of reporting has been erratic. Prior to the Chinese Communist attacks of October-November 1962, the attitude of Indian official sources was not such as to allow the free flow of intelligence on Tibet, and that intelligence which was passed usually reflected national policy rather than firm intelligence. Since that time, although their attitude has reportedly been modified, the validity and value of Indian intelligence on Tibet has improved only slightly.

c. The remoteness of Tibet also limits the effectiveness of our communications intelligence. American intercept stations are not very productive of military reporting on Tibet, especially on Chinese Communist ground forces. We are therefore almost entirely dependent on third country intercept in this area for ground force COMINT data.

d. The overhead reconnaissance effort over Tibet has consisted of limited KEYHOLE coverage supplemented by TALENT flights. The information obtained from this coverage has been limited because of its relative infrequency in comparison to KEYHOLE coverage of the USSR or CHURCHDOOR coverage of the eastern portion of China. The readability of photography is sometimes poor because that portion of Tibet east of Lhasa is predominantly cloudy.

2. Ground Force Intelligence Gaps

Because of the limitations outlined above, significant gaps in our intelligence on Chinese Communist ground forces in Tibet exist in many areas

of interest. We do not have reliable information on which to base a valid vehicle inventory in the area. Our knowledge of the logistic support facilities for combat units is poor. Our intelligence on the manning levels and status of equipment in specific divisions and regiments is poor. Although we know, largely from communications intercept, the identity and general locations of troop units with fair confidence, our knowledge on specific locations of units is also only poor. Because the existence and condition of roads is of such vital importance to the evaluation of Chinese logistic support limitations in this area, every scrap of such information from collateral and COMINT sources is collated and compared against photography. Nevertheless, because collateral and COMINT holdings are poor and photographic coverage sporadic and limited, gaps often exist in our knowledge of: (1) current status of specific road projects, (2) major engineering characteristics of specific roads, and (3) specific locations of sometimes vaguely reported bottlenecks.

3. Air Force Intelligence Gaps

Many of the same factors already discussed above also influence the validity of our holdings on Chinese Communist air forces and facilities in the Tibetan area with the exception that because of the nature of airfields, we are confident that our knowledge of their existence is good. Because of the virtual gap in communications intercept coverage of air traffic in Tibet, combined with the recently-initiated Chinese Communist policy of suppressing the transmission of radar tracking data, we are uncertain of the validity of our air order of battle holdings in Tibet at any given time. We must also rate our intelligence on air logistical installations and facilities as poor. The current operational condition and status of airfields is at best only fair. This gap could be largely eliminated by at least quarterly coverage by overhead photography of at least 10 foot resolution on the seven most important airfields influencing the Tibetan area (Kashgar/Zang Karavul, Ho-tien, So-che, Yu-shu, K'un-ming, Lhasa/Tanghsiung, and Nagchhu Dzong).

GAZETTEER

TAB "A"

Place Names and Location

Name	Variant	Georgraphic Coordinates (N/E)
Abaitanga	Ngabal Thangka	3152/8933
Aksai Chin (area)	White Stone Desert	3530/7900
A-li		3248/8243
An-hsi		4030/9600
An-to	An-tu-mai-ma, Antomaima	3220/9137
Asafila		2822/9313
Baglung		2816/8336
Bajang		2932/8105
Balamaghani		2759/9633
Bara Hoti		3045/7950
Barkha	Porkha	3052/8118
Batang	Pa-an	3000/9900
Bomda Gompa	Pang-ta	3013/9725
Bomdi La		2718/9222
Brahmaputra River	Tsangpo	2922/8900
Bum La		2744/9155
Chaksam Gompa		2920/9042
Chamdo	(see Ch'ang-tu	
Chang Ma		2910/8847
Ch'ang-tu	Chamdo	3110/9715
Chang-yeh	Chang Yen	3856/10037
Chang-yeh SE airfield		3848/10051
Chao-tung		2719/10345
Charulung Gompa		3234/8152
Chasho		2836/8711
Cheng-hsien (Honan)	Cheng-chou	3445/11342
Ch'eng-tu		3040/10405
Ch'eng-tu/Feng-huang-shan airfield		3044/10406
Ch'eng-tu/Shuang-liu airfield		3035/10357
Ch'eng-tu/T'ai-p'ing-ssu airfield		3036/10401
Ch'eng-tu/Wen-chiang airfield		3042/10357
Chiang-tzu		2857/8938
Chia-yu-kuan airfield		3950/9823
Ch'i-chiao-ching		4328/9137
Chini		3132/7815
Chodzong		2819/8650
Chosam		2845/9310
Chumbi Valley		2728/8853
Chushul		3357/7840
Dagyeling Gompa		2857/8542
Dana		2832/8338
Darjeeling		2702/8816
Daulat Beg Oldi		3523/7756
Denchin	(see Ting-ch'ing)	
Dening		2801/9614
Dewangiri		2652/9128
Dharchula		2951/8032
Dhulikhel		2737/8533
Dingla		2703/8701

TAB "A"

GAZETTEER

Place Names and Location

Name	Variant	Geographic Coordinates (N/E)
Dolaghat		2738/8542
Donglik	(see Tung-li-k'o)	
Doshong Pass		2929/9505
Drowa Gompa	Chueh-lo-wa	2850/9730
Druzhba		4505/8235
Erh-chiang	Jo-ch'iang, Charkhlik	3902/8800
Gacharewa	Chia-ch'a-li-wa	3133/9143
Gangtok		2720/8837
Gar Dzong		3211/7957
Gartok	Ka-ta-k'o	3145/8022
Gauhati		2611/9144
Girang Dzong		2828/8516
Golmo	Ka-erh-mu, Ko-erh-mu	3630/9455
Gusar		2803/9418
Gyangkar Nangpa		2823/8746
Gyangtse Dzong	Chiang-tzu	2855/8935
Hami		4250/9331
Hasimara		2643/8922
Hei-ho	(see Nagchhu Dzong)	
Ho-k'ou-nan		3609/10329
Ho-t'ien airfield		3710/7952
Hsia-kuan		2535/10012
Hsi-chang airfield		2755/10213
Hsieh-ta	Sheda	3103/9137
Hsin-ching airfield		3025/10351
Hsi-ning		3637/10145
Hsi-ning airfield		3633/10159
Hung-liu-yuan	Liu-yuan	4109/9521
I-ning	(see Kuldja)	
Irkeshtam		3942/7355
Jelep La		2722/8853
Jongkha Dzong	Jung-ha	2857/8512
Joshimath		3034/7934
Jyekundo	(see Yu-shu)	
Ka-erh-mu	(see Golmo)	
Ka-erh-mu airfield		3645/9535
Kalimpong		2704/8829
K'ang-ma	Khangmar, Kangmar	2834/8913
Kan-tzu airfield		3137/10002
Karakoram Pass		3530/7730
Karakorum Range		3400/7800
Kargang La		3015/8224

Place Names and Location

Name	Variant	Geographic Coordinates (N/E)
Karghalik	(see Yeh-ch'eng)	
Kashgar	Su Fu, K'o-shih	3926/7558
Kashgar/Zang Karavul airfield		3931/7557
Katmandu		2743/8519
Khamba Dzong	Kampa Dzong	2817/8832
Kharta Shika		2805/8719
Khata	Ka Ta	2954/9545
Khinzemane	Shatze	2745/9147
Khojarnath		3010/8120
Khotan		3707/7955
Kibithoo		2818/9701
Kodari Pass		2800/8600
Kuang-han airfield		3057/10420
Kudo		2754/8741
Kuldja	I-ning	4355/8118
Kyimdong		2859/9327
Kyirong	Kyerong Dzong, Chi-lung	2827/8518
Ladakh (area)		3420/7725
Lagankhel		3249/7919
Lan-chou	Lanchow	3603/10341
Lanchou airfield		3601/10349
Langra		2854/9020
Le		2750/9150
Leh		3410/7735
Leng-hu		3850/9320
Lethang		2822/9127
Lhakhang Dzong	Lei-k'o-heng	2805/9105
Lhasa	La-sa	2940/9109
Lhasa airfield	Tanghsiung	3030/9106
Lhatse Dzong	La-tzu	2910/8741
Lhobrak River		2738/9110
Lhuntsi Dzong		2738/9109
Li-ma	Lima, Rima	2826/9702
Lin-chih		2928/9422
Lipulek La	Li-p'u-lieh-k'o	3014/8100
Longju		2838/9338
Lung		2822/9308
Lup Gaz		3704/7454
Lusha Pass		2918/9437
Mana La		3105/7925
Manas River		2630/9040
Mani-ken-kuo		3155/9918
Markham Dzong	(see Ning-ching)	
Meng-tzu West airfield		2324/10319
Mi-lin		2910/9400
Min-feng	Niya Bazar	3705/8240
Molo		2855/9354
Monda		2827/9036
Mustang		2911/8358
Na-ch'u		3136/9200
Nagchhu Dzong	Hei-ho, Nakchukha Dzong	3128/9200

Name	Variant	Geographic Coordinates (N/E)
Nagchhu Dzong airfield		3133/9144
Nan-ch'ung	Shun-king	3049/10607
Nimashi		2905/8400
Natu La	Na-tu Shan-k'ou	2725/8853
Nawsot		3155/8510
New Delhi		2836/7712
Nieh-la-mu	Nyalam Dzong	2811/8558
Nien Lung		2757/8925
Ning-ching	Markham Dzong	2940/9833
Niti La		3059/7950
Nubra Valley		3439/7736
Nyalam Dzong	(see Nieh-la-mu)	
Nyapso Pass	Nyapso La	2910/9031
Osh		4025/7245
Pa-ch'u	Maral Bashi	3952/7837
Panamik		3447/7733
Peng-ta	(see Bomda Gompa)	
Pangong Tso		3345/7883
Pao-shan airfield		2504/9909
Paro Dzong Bhutan		2726/8925
Pei-tun airfield		2527/10044
Phari Dzong		2745/8910
Podzo Sumpo		2842/9327
Pokhara		2814/8359
Porkha	(see Barkha)	
Rajja		2804/9408
Rakha La		2753/8732
Rau		2930/9647
Raxaul		2659/8451
Rima	(see Li-ma)	
Rongbuk Gompa		2813/8650
Rudog	Jih-tu	3327/7942
Rybach ye		4225/7615
Saka		2930/8509
Sakya Gompa	Sa-chia	2855/8803
Samudruki		2938/9822
Sanga Choling	San-chia-tso-lin	2833/9301
Sar	Chang Ssu Shara	2813/8746
Sasom Pass		3502/7744
Shan-nan		2916/9126
Shekar Dzong		2839/8705
Shigatse	(see Zhikatse)	
Shih-ku-chieh		2652/9956
Shipki La	Shih-pu-chi Shan-k'ou	3149/7845
Shola		2928/9434
Shugden Gompa	Lanieh	2932/9656
Shyok River		3513/7553
Siliguri		2642/8826
So-che	Yarkand	3824/7715

Name	Variant	Geographic Coordinates (N/E)
So-che airfield		2825/7717
So-hsien	Sugsun Dong Gompa	3150/9345
Spanggur Tso		3332/7855
Subansiri Valley		2648/9349
Su Fu	(see Kashgar)	
Su-lo	Kashgar Yangi Shahr	3921/7604
Syangja		2905/8352
Ssu-mao North Airfield		2248/10058
Taklakhar	Taklakot, P'u-lan	3017/8110
Taku Pass	T'a-ku Shan-k'ou	2904/8506
Tashi Gang Dzong		2719/9134
Tashigong	Chia-hsi-kang	3232/7941
Tashirak		2754/8737
Tepang		2754/9645
Tezpur		2638/9248
Ting-ch'ing	Denchin	3133/9536
Tingri Dzong	Ting-jih	2835/8638
Tirit		3430/7815
Torsa River		2616/8936
Towang		2735/9152
Tra Pass	Tra La, T'a-lo-p'u, Trap	2909/8837
Tradum	Tradom	2939/8410
Trigu	Che-ku	2843/9143
Tromda		2905/9255
Tsang-p'o River	Brahmaputra River	2922/8900
Tsela Dzong		2924/9422
Tsethang	Tse-tang	2915/9146
Tsogo		2830/8728
Tsona Dzong	Ts'o-na	2759/9157
Tuna	Duna, Tu-na	2759/8913
Tung-li-k'o		3922/8915
Tung-o-lo		3004/10143
Turfan	Tu-lu-fan	4255/8918
Turug Art Dawan	Pereval Turugart	4035/7525
Tu-shan-tzu	Tu-shan-tso	4419/8453
Ukuhu		2922/8521
Una Chhongra		2930/8428
Urumchi	Ti-hua	4349/8735
Wu-wei		3758/10248
Wu-wei airfield		3801/10243
Ya-an		2957/10310
Yang-pa-ching	Zamsar	3006/9032
Yarkhand	Yarkand So-ch'e	3825/7717
Yatung		2728/8855
Yeh-ch'eng	Karghalik	3753/7727
Yu-men	Lao-chun-miao	3950/9744
Yung-teng		3644/10324
Yu-shu	Jyekundo	3301/9644
Yu-shu airfield		3253/9647
Zamsar	(see Yang-pa-ching)	
Zhikatse	Shigatse	2917/8853
Zinga	Chin-chia	3330/7940

Appendix A to TAB A

INTERDICTION TARGETS LIST

25X1A

Study Target Number	Reference (Major-Minor)	Name	& Coordinates
A'-1	27477-27477	Chang-chia-chuan RR bridge over Huang Ho	36-06-0/N 103-18-0/E
A'-2	27477-27477	Ho K'ou RR bridge over Huang Ho	36-10-0/N 103-24-0/E
A'-3	45160-45160	Lan-chou RR classification yards west	36-03-04N 103-42-00E
A'-4	12810-12810	Ch'engtu RR classification yards	30-40-34N 104-06-27E
A'-5	52987-52987	Mien Yang RR yard	31-28-40N 104-44-35E
A'-6	45160-45160	Lan-chou petroleum refinery	36-06-53N 103-38-02E
A'-7	63492-63492	Pai-yang-ho petroleum refinery Yu-men	39-49-37N 097-41-10E
A'-8	46194-46194	Leng-hu petroleum refinery & storage	38-58-0/N 093-20-0/E
A'-9	96575-96575	Tu-shan-tzu petroleum refinery & storage	44-19-50N 084-50-58E
A'-10	45160-45160	Shih-li-tien highway bridge over Huang Ho	36-03-50N 103-40-50E
A'-11	28485-28485	Hsin-ching highway bridge over Min Chiang	30-25-00N 103-49-45E
A'-12		Yu-hsi Ho highway suspension bridge near Ya-an	30-01-//N 103-07-//E
A'-13		Ta-tu Ho highway suspension bridge nr Luting	29-54-//N 103-28-//E
A'14		Nu Chiang highway bridge nr Pang-ta	30-05-//N 097-18-//E
A'-15	32773-32773	Kang-to highway bridge over Chin-sha Chiang	31-37-20N 098-43-40E
A'-16		Tibet Central Transportation Depot & Hq	29-41-30N 091-07-30E
A'-17		Lhasa West Ammunition Depot	29-40-30N 091-03-30E
A'-18		Lhasa Depot Complex area	29-39N to 29-42N/ 091-03E to 091-11E

25X1A

Study Target Number	Reference (Major-Minor)	Name	Coordinates
A -19		Tsethang army general supply depot	29-16-0/N 091-46-0/E
A -20	25650-25650	Gyangtse army general supply depot	28-57-0/N 089-38-0/E
A -21	99460-99460	Zhikatse army supply depot central	29-16-10N 088-53-10E
A'-22		Ch'eng-tu Rail-to-road transshipment point	30-10-26N 104-07-00E
A'-23		Hsi-ning Rail-to-road transshipment point	36-35-38N 101-57-05E
A'-24		Hung-liu-yuan rail-to road transshipment point	41-08-40N 95-21-00E
A -25		Urumchi rail-to-road transshipment point	43-46-12N 87-34-10E
A -26		Turfan (Tu-lu-fan) rail-to-road transshipment po	42-56-27N 89-18-45E
A -27		Railway bridge east of Wu-wei	37-52-00N/102-56-40E
A-28		Kan-tang-tzu classification yard	37-28-20N/104-31-30E
A -29		Highway bridge north of Ka-erh-mu	36-39-11N/95-02-30E
A-30		Highway bridge/ causeway over Yarkand River	38-16-11N/77-17-11E

APPENDIX "B" TO TAB "A"

(S) AVERAGE TONNAGES DELIVERED BY MSR's

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Route	Distance Miles	Capacity			Spring				Summer Monsoon				Autumn				Winter			
		Max.	Min.	Difference	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)
a. Urumchi - Kashgar	750	1000	200	800	10	920	340.1	580	2	984	359.8	620	2	984	359.8	620	25	800	295.8	500
b. Kashgar - Gartok	600	500	50	450	20	410	151.6	260	0	500	184.9	320	0	500	184.9	320	30	365	134.9	230
c. Ka-erh-mu - Yang-pa-ching	1000	1000	200	800	10	920	230.0	690	2	984	246.0	740	2	984	246.0	740	25	800	200.0	600
d. Ch'eng-tu - Fang-ta	480	500	50	475	2	491	70.0	420	20	410	5815	350	5	475	67.2	410	40	320	67.6	240
e. Hsining-Yushu	233	750	250	500	10	700	178.5	520	2	740	63.3	660	2	740	63.3	660	25	625	70.4	550
f. Wu-shu - Chomo Dzong	260	500	50	450	2	491	61.2	430	20	410	51.1	360	5	475	59.6	420	40	320	39.8	280

NOTES: a. It is estimated that up to 700 miles one ton of POL is required to deliver 3 tons of supplies.

b. It is estimated that between 700 and 1,000 miles two tons of POL are required to deliver 3 tons of supplies.

c. It is assumed that under the operational phasing factor of the Agreed US-UK Road Methodology that in this case there is an allowance of one ton of POL for every 3 tons of supplies delivered.

Appendix C to TAB "A"

TERRAIN AND CLIMATIC LIMITATIONS TO LOGISTIC AND AIR OPERATIONS ON THE SINO-INDIAN NEPALESE FRONTIERS

I. TERRAIN

1 General

The frontier extending from Ladakh to Burma, is about 2500 miles long and contains the highest mountains in the world.

The frontier is described in three main terrain areas: Western (Ladakh to Nepal) Central (Nepal) and Eastern (from Nepal to Burma)

2 Western Area

a. Road access to the area is by the western (Aksai Chin) MSR from Kashgar and by two good lateral routes from central Tibet.

b. This is a sparsely inhabited barren arid and largely mountainous area The Himalaya and Karakoram Ranges running mainly from northwest to southeast are steep and sharp crested and rise from 15 000 and 25 000 feet above sea level. Large permanent snowfields and glaciers cap many features. Separating the mountain massifs are narrow valleys and gorges, some 17,000 feet deep

c. The least rugged part of the area consists of a large hill and basin tract stretching from the northeastern part of Ladakh around the Aksai Chin (White Stone Desert) Lake eastward into Tibet. This sector consists of broken moderately dissected rounded hills, some mountains with intervening flat or rolling basins. Limited cross country vehicle movement is possible in this sector but is made difficult by bouldery surfaces, marshes, lakes and snow melt rivers

d. The principal sources of water throughout the area are the permanent snowfields and glaciers

e. Desert vegetation may occur up to about 16 000 feet above sea level, and in the extreme southwestern parts of the area there are evergreen oak and coniferous forests Most vegetation however consists of low grass scattered shrubs two to five feet tall and a few 15 to 20 foot trees. Shrubs and trees are generally scattered along streams

25X1

f The few towns and villages are found beside streams, and are connected by trails that often cross mountain ranges by high passes; some more than 15 000 feet above sea level

g Throughout the area motorable roads are generally one lane, of earth construction or surfaced with gravel with low capacity bridges and ferries and steep grades and sharp curves which preclude the rapid road movement of vehicles In addition landslides and avalanches frequently block traffic Passes become snowblocked in winter and many streams are too deep to ford during the high water from early April through July. In most areas cross-country movement by vehicles is impossible due to steep slopes and bouldery surfaces

h Foot movement of troops and pack animals is relatively easy except in the high peaks and more difficult defiles Deployment of troops on a wide front is difficult due to the exposed and rugged terrain and the difficulties of bringing forward supplies to remote positions. Deployment of artillery would be similarly impeded by the terrain and by crest clearance problems. The area is not suited to armor

i With the exception of the approaches from Spanggur towards Leh, cross-frontier movement is everywhere restricted to foot travel through narrow passes In some cases little engineering effort would be required to make jeep tracks through the passes to connect with Indian roadheads. This particularly applies to the Shipki Pass

3. Central Area

a Access to this area from China is by the central MSR from Ka-erh-mu (Golmo) and from the southern of the two lateral routes paralleling the Nepal-Tibet frontier to the north

b. The terrain extending along the Nepal-Tibet frontier is a continuation of the Himalayan range The crests of this range lie south of the border and rise to elevations of 20 000 to 25 000 feet above sea level

Major frontier passes are between 14,500 and 20,000 feet. Ridges are exceedingly steep and culminate in sharp, snow capped crests and towering peaks. Valleys are deep and particularly south of the peaks become gorges in many places.

c. Southern slopes to the south of the range are covered by dense tropical forest. Temperate forest and alpine scrub are found further north. North of the Himalayas high desert scrub and grass give way on exposed high features, to barren rocky surfaces. Cultivation and some stunted timber is found in the major river valleys such as the Tsangpo (Brahmaputra).

d. Population centers are Lhasa, Shigatse and Gyangtse. As elsewhere in Tibet villages in the area are found only by rivers.

e. Comments on vehicle and foot movement and the deployment of troops and equipment given for the western area apply equally here.

f. Cross-frontier travel is all by foot and animal transport. The Chinese are however building a road which when completed will connect Katmandu and Nyalam Dzong and join the main road system to Lhasa. This road is expected to be open to one ton trucks by late 1965.

4. Eastern Area

a. Access to this area from China is gained by the central, eastern and northeastern MSRs.

b. As in other areas the frontier is dominated by the Himalayas, the frontier generally following the watershed. Though formidable obstacles to military movement the mountains do not attain the great altitudes of the Nepal sector, being mostly only 16,000 feet above sea level with a few peaks above 20,000 feet. Major passes are generally 13,000 feet or higher. The trend of the mountains runs mainly from east to west.

c. Shrubs and low grass cover most of these mountains, but there are some areas of dense forest in the principal north-south valleys which penetrate the Himalayan barrier. South of the watershed the mountains are densely forested. Cultivation is mainly confined to the Tsangpo valley.

d. During and after the monsoon rains road and track conditions will

be extremely muddy and tracks south of the Himalayas will quickly become impassable without major engineering effort. Flash floods occur, and the Tsangpo river may flood cutting the road from Lhasa to Tsetang.

e. Comments on vehicle and foot movement and the deployment of troops and equipment given for the western area apply equally here.

f. There are four major access routes from Eastern Tibet and western China into India through the Himalayan range. They are from west to east:

(1) the Chumbi valley which through two passes (one having a light road) gives access to Gangtok and the Indian roads leading to Siliguri and the plains

(2) South of Lhakhang Dzong where a trail through the Lhobrak valley leads to Lhuntsi Dzong in Bhutan.

(3) At the scene of the 1962 Sino-Indian fighting in NEFA, a Chinese built road goes through the pass at Bum La joining the Tibetan roads to the Indian road from Tezpur at the frontier town of Towang. This route is probably impassable to vehicles in winter and during the monsoon.

(4) Lastly at the junction of the Indian and Burmese frontiers with China, a trail follows the Tellu river valley entering Indian territory at Lima.

II. CLIMATE

A. Ground Operations

1. General

Climate affecting movement toward or across the Sino-Indian Frontier is of two general types: (1) The eastern monsoon area, encompassing all of the NEFA and a narrow belt following the Brahmaputra valley west to include Lhasa; and (2) the main east-west Himalaya spine and the high central plateau which constitute the remainder of Tibet.

2. The Eastern Monsoon Area

Summer, which lasts from June through September, is warn in the Lhasa area and is earlier and very hot and wet in the NEFA. Rainfall varies

greatly each year but averages 15-20 inches a year in Lhasa, rising to about 100 inches in the NEFA. During the southeast monsoon, roads in the Brahmaputra Valley and in the Lhasa area may be obstructed by flooding, and in NEFA the heavy rain may cause washouts and landslides. Optimum road capacities may be attained throughout the area for short periods during the summer. During the southeast monsoon, flooding washouts and landslides may reduce capabilities to the minimum.

Autumn consists of October and November. During this period the weather is often clear and more free from rain and clouds than at any other period. This is the most favorable season for military operations. Optimum tonnages may be expected until the arrival of the first winter snows.

Winter lasts from December through February. Although the snowline may be down to 7 000 feet in places, the weather is generally moderate except at high altitudes. Clear days are frequent in December and January. High winds result in patchy snow coverage, except in the high mountains, where passes may be blocked for short periods by snow drifts. Except for short periods on routes over high passes, road conditions will be average and near optimum tonnages will prevail

Spring months are March through May. Day temperatures are generally warm though severe frosts may occur at night. Occasional rain, sleet, and snow showers are scattered. Road conditions will be fair, though flooding, unfordable streams and rockfalls caused by the thaw may obstruct some routes for short periods. Near optimum tonnages may be achieved.

3. The Himalayas and the Central Plateau

Summer lasting from June to September, is mild, with day temperatures well above freezing and some frosts at night. The snow line recedes to about 18 000 feet. Drought conditions generally prevail except in Western Ladakh where heavy rain from the southwest monsoon causes landslides and swollen streams from April to October. Except in southwestern Ladakh, summer is favorable for military operations and near optimum tonnages may be expected

Autumn, consisting of October and November, is the best season for military operations and optimum tonnages may be expected.

Winter lasts from December to March. Temperatures are severe and winds occasionally reaching gale force not only make the cold difficult to endure but also fill the air with fine penetrating dust. Snowstorms and blizzards are frequent particularly in the mountains. The severe temperatures are the greatest deterrent to military operations. Roads through high passes are likely to be blocked by snow drifts for short periods, but road capacities will be generally nearly optimum.

Spring (April and May) is the most difficult season for military operations in the mountainous areas. Melting snow makes streams unfordable and the main, flat-floored valleys are often flooded, particularly in the Ladakh area, but also where supply routes cross mountain valleys. Frosts occur almost every night, but day temperatures move above freezing. All roads in this area are liable to obstruction by spring floods, rock falls, and washouts. Road tonnages are frequently minimal.

4. Conclusions

a. Eastern Monsoon Area

(1) Autumn. The best season for operations. Logistic support should not be endangered by weather.

(2) Winter. Support to small-scale patrol operations may be possible using the lower passes, but a large force could not be supported south of the Himalayas if the supply route was through a high pass, such as that at Bum La (14 210).

(3) Spring. Logistic support should permit operations until curtailed by the SE Monsoon.

(4) Summer. In a year of heavy monsoon rain, logistic support would be very difficult, particularly in southern NEFA. Limited operations are possible.

b. The Himalayas and Central Plateau

(1) Autumn. The best season for operations. Logistic support

should not be endangered by weather.

(2) Winter. Logistic support for even minor operations would be very difficult, and the cold may prohibit patrol actions for long periods.

(3) Spring. Major operations cannot be supported, thought patrol actions may be possible.

(4) Summer. Except in western Ladakh, weather should not limit operations. In western Ladakh operations will be possible but will be hampered by the SW Monsoon.

B. Air Operations

1. Eastern Monsoon Area

a. Weather conditions are least favorable for air operations during the southeast monsoon season from June through September. Heavy rains are frequent, and generally overcast skies with multiple cloud decks extend to great heights. Ceilings are low, and restricted visibilities and turbulence prevail almost continuously over the Himalayan crests and on the Indian slopes. However, occasional breaks in the cloudiness and rainfall sometimes occur for a day or two. Over the Chinese side of the border, conditions improve northward. Rain occurs on one-third to one-half of the days, and ceilings and visibilities are often adequate for low-level air operations. Aircraft icing is most frequent and hazardous from 15,000 to 20,000 feet. Winds are southerly or southeasterly, but faster and westerly above 25,000 feet.

b. Conditions are best for air operations in winter, from December through February. Clear on partly cloudy skies prevail. Cloudy days with light showers usually occur less than 5 days per month. Icing is infrequent in the dry air. Winds aloft are westerly. Speeds increase with altitude, reaching 100 knots above 35,000 feet, with frequent and hazardous turbulence over the mountains.

2. Himalayas and Central Plateau

a. During the southeast monsoon season frequent heavy rains,

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overcast cloud layers extending to great heights, low ceilings, restricted visibilities, and turbulence prevail most of the time on the Indian and Nepalese portions of the Himalayas and west of Nepal over the southern ranges near the Indian lowlands. During this period, weather conditions are least favorable, although occasional breaks in the cloudiness and rainfall lasting for a day or two occur at intervals. The southeast monsoon begins later and ends earlier by several weeks over the western portion as compared with the eastern portion.

b. Over the Chinese side of the border and in the portion of the Ladakh area north of the initial ranges fronting the Indian lowlands, conditions are quite different. Rainfall occurs only a few days per month and clear skies prevail one-third to two-thirds of the days. Cloudiness decreases northward. Low ceilings and adverse visibilities are infrequent. Winds aloft are light, with directions at low levels mostly southeasterly in the east, shifting to northerly or northeasterly in the west, and to westerly above 25,000 feet with increasing speeds.

c. Conditions are best for air operations in this area from late September through March. Clear skies generally prevail at least one-half of the days and precipitation is light and very infrequent. Icing is infrequent in the dry air. Winds aloft are westerly and light at low levels, but increase with altitude. Wind speeds may reach 100 knots above 35,000 feet with frequent and hazardous turbulence over the mountains.

III. CONCLUSIONS

1. The most favorable month for the Chinese to attack India and Nepal would be either October or late September in a year of short monsoon.

2. Ground operations through the Himalayas will be very difficult, but not impossible to support during the monsoon when road capacities are minimal.

3. Ground operations will be even more difficult to support during the severe winter, and at higher elevations troops will need shelter when not on the move. Movement may be restricted for long periods by blizzards and high winds. Limited operations are possible in the short spring, particularly in the eastern area.

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4. Autumn is the best season for ground operations.

5. For air operations, conditions in the central and western areas are best from September through March. In the eastern monsoon area the best conditions do not usually begin until December and last to the end of February.

6. Terrain will severely limit the types of ground units which could be employed. The area is best suited to lightly equipped mountain troops, supported by pack artillery. Armor could be used in a defensive role in Ladakh and north of the Chumbi valley. In the offensive role armor could only cross the frontier in very limited numbers in Ladakh and through the Natu Pass out of the Chumbi valley. Maintenance problems for armor would be enormous due to excessive fuel consumption at high altitudes, and the very poor going conditions.

Appendix D to TAB "A"

(S) ESTIMATED DAILY SUPPLY REQUIREMENTS FOR UNITS IN TIBET AND SOUTHERN SINKIANG

1 JANUARY 1964

(1) Area *	(2) Strength as of 1 Jan 64	(3) Daily Resupply Requirements (short tons per day) Class I	(4) Classes II & IV	(5) Class III**	(6) TOTAL
a. Western Area Khotan and Ali Military Subdistricts	25,200	48.3	36.3	54.8	139.4
b. Central Area Lhasa, Zhikatse, Chiang-tzu and Shannan Military Subdistricts	41,200	68.2	60.0	55.3	183.5
c. Eastern Area Lin-chih and Chang-tu Military Subdistricts	47,400	96.4	75.6	71.4	243.4
d. CCAF radar Units	not known	n k	n k	n k	5.0 est
e. TOTALS	113,800	212.9	171.9	181.5	570 (rounded)

* Strengths shown in col 2 are those believed to be supplied by the Western, Central and Eastern MSRs. For tactical command purposes this grouping may not apply.

** POL required for transport of supplies from MSR Terminus Depots to units and for normal unit maintenance.

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TWELVE MONTH STOCKPILE CAPABILITIES AT MSR TERMINUS DEPOTS AT "MAXIMUM" AND "PROBABLE" SCALES OF ATTACK

	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1. WESTERN MSR (1)																	
a. Tonnage Delivered	18,600	18,600	18,600	18,600	18,600	18,600	15,000	15,000	15,000	15,000	8,700(2)	17,400	18,600	18,600	18,600	18,600	18,600
b. CCAF requirement(3)	700	700	700	700	700	700	700	700	700	700	700	700	2,280	2,280	2,280	2,280	2,280
c. Troop requirement	4,170	4,170	4,170	4,170	4,170	4,170	4,170	4,170	4,170	4,170	4,420	4,870	4,870	4,870	4,870	4,870	4,870
d. Monthly Surplus	13,730	13,730	13,730	13,730	13,730	13,730	10,130	10,130	10,130	10,130	3,580	11,830	11,450	11,450	11,450	11,450	11,450
e. Running Surplus	13,730	27,460	41,190	54,920	68,650	82,380	92,510	102,640	112,770	122,900	126,480	138,310	149,760	161,210	172,660	184,110	195,560
2. CENTRAL MSR "MAXIMUM"(4)																	
a. Tonnage Delivered				22,200	22,200	22,200	18,000	18,000	18,000	20,700	20,700	20,700	nil(5)	nil(5)	22,200	22,200	22,200
b. CCAF requirement(3)				2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	2,550	nil(5)	nil(5)	2,550	9,900	9,900
c. Troop requirement				5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	12,860	20,230	20,230	32,890	32,890
d. Monthly Surplus				14,150	14,150	14,150	9,950	9,950	9,950	12,650	12,650	12,650	-12,860	-20,230	580	-20,590	-20,590
e. Running Surplus				14,150	28,300	42,450	52,400	62,350	72,300	84,950	97,600	110,250	97,390	77,160	76,580	55,990	35,400
3. CENTRAL MSR "PROBABLE"(4)																	
a. Tonnage Delivered				22,200	22,200	22,200	18,000	18,000	18,000	20,700	20,700	20,700	22,200	nil(5)	22,200	22,200	22,200
b. CCAF requirement(6)				360	360	360	360	360	360	360	360	360	360	nil(5)	360	1,470	1,470
c. Troop requirement				5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	7,010	8,530	12,220	12,220
d. Monthly Surplus				16,340	16,340	16,340	12,140	12,140	12,140	14,840	14,840	14,840	16,340	-7,010	13,310	8,510	8,510
e. Running Surplus				16,340	32,680	49,020	61,160	73,300	85,440	100,280	115,120	129,960	146,300	139,290	152,600	161,110	169,620
4. EASTERN MSR																	
a. Tonnage Delivered				21,300	24,900	24,900	20,100	20,100	20,100	24,600	24,600	24,600	23,400	23,400	23,400	21,300	24,900
b. Troop requirement				7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,300	7,720	7,720
c. Monthly Surplus				14,000	17,600	17,600	12,800	12,800	12,800	17,300	17,300	17,300	16,100	16,100	16,100	13,580	17,180
d. Running Surplus				14,000	31,600	49,200	62,000	74,800	87,600	104,900	122,200	139,500	155,600	171,700	187,800	201,380	218,560
5. TOTAL ALL MSRs "MAXIMUM"(4)																	
a. Tonnage Delivered				62,100	65,700	65,700	53,100	53,100	53,100	60,300	54,000	62,700	42,000	42,000	64,200	62,100	65,700
b. Troop and CCAF requirement				20,220	20,220	20,220	20,220	20,220	20,220	20,220	20,470	20,920	27,310	34,680	37,230	57,660	57,660
c. Monthly Surplus				41,880	45,480	45,480	32,880	32,880	32,880	40,080	33,530	41,780	14,690	7,320	26,970	4,440	8,040
d. Total Running Surplus				83,070	128,550	174,030	206,910	239,790	272,670	312,750	346,280	388,060	402,750	410,070	437,040	441,480	449,520

NOTES:
(1) Assuming attack begins in June stockpile is shown for preceeding twelve months.
(2) Only half normal tonnage delivered due to reinforcement.
(3) It is estimated that to allow for 90 days operational stockpiling the following monthly tonnages will be allotted to the CCAF:-
a. Western MSR 700 short tons.
b. Central MSR 2,550 short tons.
(4) See Section VIII, para. 6.g.
(5) No supply available or delivered due to reinforcement.
(6) Due to the low surplus tonnage available in the Central MSR area it has been assumed that CCAF stockpiling would be restricted to 30 days of non air transportable materials only (total requirement 419 tons plus 2 tons for civil air current requirement of which 30 tons is non air transportable).

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APPENDIX "F" TO TAB "A"

(S) ESTIMATED NET SEASONAL CAPACITIES OF SUPPLY ROUTES FROM MSR TERMINUS DEPOTS TO FRONTIER CROSSING POINTS

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Route	Distance Miles	Capacity			Spring				Summer/Monsoon				Autumn				Winter			
		Max.	Min.	Difference	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)
WESTERN AREA																				
a. Haji Langar - Daulat Beg Oldi	150	100	0	100	20	80	6.2	70	0	100	7.7	70	0	100	7.7	90	30	70	5.4	60
b. Haji Langar - Gartok	370	500	50	450	20	475	101.0	370	0 0	500	106.3	394	0	500	106.3	394	30	365	77.6	290
c. An-to - Tashigong	725	750	100	650	10	695	222.0	470	0	750	280.0	470	0	750	280.0	470	15	553	188.0	360
d. Tashigong - Chushul	110	50	0	50	20	40	2.4	50	0	50	2.5	50	0	50	2.5	50	15	47	2.3	50
e. Rudog - Spangur	45	800	175	625	20	594	28.2	570	0	800	40.0	760	0	800	40.0	760	15	530	26.0	500
f. Gartok - Shipki La (pass)	100	600	125	475	20	452	22.6	430	0	600	30.0	570	0	600	30.0	570	20	452	22.6	430
g. Gartok - Bara Hoti	120	50	0	50	20	40	2.0	40	0	50	2.5	50	0	50	2.5	50	20	40	2.0	40
h. Zhikatse - Gartok	675	1300	450	850	10	1215	393.9	820	5	1250	408.3	850	0	1300	422.4	880	15	1173	386.9	780
i. Barkha - Taklakhar	50	900	200	700	20	760	19.0	740	0	900	22.5	880	0	900	22.5	880	10	830	20.7	810
j. Taklakhar - Lipulek La (pass)	10	600	125	475	20	505	2.4	500	0	600	3.0	600	0	600	3.0	600	15	530	2.6	530
CENTRAL AREA (NEPAL)																				
k. Taklakhar - Khotarnath	10	800	175	625	20	665	3.3	660	0	800	4.0	800	0	800	4.0	800	15	707	3.5	700
l. Yang-pa-ching - Zhikatse	150	900	200	700	10	830	99.6	730	5	865	106.0	760	0	900	107.8	790	15	795	95.0	700
m. Tradum - Choka-Dzong	40	500	100	400	20	420	10.5	410	0	500	12.5	440	0	500	12.5	490	15	440	11.0	430

For climatic reduction to road capacity a percentage of the difference between maximum and minimum capacity has been deducted from maximum capacity to give the average maximum seasonal capacity. POL has then been deducted from the maximum seasonal capacity to give a net average capacity for each route in each season.

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APPENDIX "F" (continued)

(S) ESTIMATED NET SEASONAL CAPACITIES OF SUPPLY ROUTES FROM MSR TERMINUS DEPOTS TO FRONTIER CROSSING POINTS

(1) Route	(2) Distance Miles	(3) Capacity Max.	(4) Min.	(5) Difference	(6) Spring % Climate Reduction	(7) Reduced Max	(8) POL Deduction	(9) Net Capacity (Rounded)	(10) Summer/Monsoon % Climate Reduction	(11) Reduced Max	(12) POL Deduction	(13) Net Capacity (Rounded)	(14) Autumn % Climate Reduction	(15) Reduced Max	(16) POL Deduction	(17) Net Capacity (Rounded)	(18) Winter % Climate Reduction	(19) Reduced Max	(20) POL Deduction	(21) Net Capacity (Rounded)
CENTRAL AREA (cont)																				
n. Saka - Jongkha Dzong	60	600	125	475	20	505	12.6	500	0	600	15.0	590	0	600	15.0	590	15	530	13.2	520
o. Jongkha Dzong - Girang Dzong	50	800	175	625	20	675	16.9	660	0	800	20.0	780	0	800	20.0	780	15	707	17.7	690
p. Kyirong Dzong - Border (Kyirong Pass)	10	500	100	400	20	420	2.1	420	0	500	2.5	500	0	500	2.5	500	15	440	2.2	440
q. Zhikatse - Tingri Dzong	170	1500	500	1000	10	1600	204.0	1400	0	1500	191.37	1310	0	1500	191.37	1310	10	1600	204.0	1400
r. Tingri Dzong - Nyalam Dzong	60	600	125	475	20	506	13.0	490	0	600	15.5	580	0	600	15.5	580	15	530	13.5	520
s. Nyalam Dzong - Border (Kodari Pass)	20	500	100	400	20	420	4.1	420	0	500	3.0	500	0	500	3.0	500	15	440	4.4	440
t. Zhikatse - Sar	150	800	175	625	10	738	88.5	650	0	800	96.0	700	0	800	96.0	700	10	738	88.5	650
u. Sar - Border (Rakha la (Pass)	20	500	100	400	20	420	4.35	420	0	500	5.18	490	0	500	5.18	490	15	440	4.56	440
EASTERN AREA																				
v. Phari Dzong - Yatung (Chumbi Valley)	25	800	150	650	10	735	7.5	730	5	768	8.0	760	0	800	8.5	790	15	703	5.0	700
w. Yang-pa-Ching - Phari Dzong	240	1100	225	875	10	1013	164.4	850	5	1057	173.4	880	0	1100	175.8	920	15	970	159.1	810
x. Yang-pa-ching Lhakhang Dzong	230	750	250	500	5	725	113.7	610	10	700	109.8	590	0	750	117.7	630	15	675	105.9	570
y. Yang-pa-ching Bum La (Pass)	320	500	100	400	5	480	92.0	390	15	440	85.1	350	0	500	82.5	420	15	440	85.1	350
z. Yang-pa-ching Longju	300	500	100	400	5	480	74.2	410	15	440	67.9	370	0	500	77.2	420	20	420	64.8	360
aa. Pangta - Li-ma	230	750	250	500	5	725	113.8	610	20	650	102.0	550	0	750	117.7	630	10	700	112.5	590

For climatic reduction to road capacity a percentage of the difference between maximum and minimum capacity has been deducted from maximum capacity to give the average maximum seasonal capacity. POL has then been deducted from the maximum seasonal capacity to give a net average capacity for each route in each season.

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APPENDIX "G" TO TAB "A"

(S) ESTIMATED NET SEASONAL CAPACITIES OF ATTACK ROUTES SOUTH OF THE SINO-INDIAN/NEPAL FRONTIERS

(1) Route	(2) Distance Miles	(3) Capacity ST Fwd per Day	(4) Spring: % Climate Reduction	(5) Spring: Reduced Capacity	(6) Spring: POL Deduction	(7) Spring: Net Capacity (Rounded)	(8) Summer/Monsoon: % Climate Reduction	(9) Summer/Monsoon: Reduced Capacity	(10) Summer/Monsoon: POL Deduction	(11) Summer/Monsoon: Net Capacity (Rounded)	(12) Autumn: % Climate Reduction	(13) Autumn: Reduced Capacity	(14) Autumn: POL Deduction	(15) Autumn: Net Capacity (Rounded)	(16) Winter: % Climate Reduction	(17) Winter: Reduced Capacity	(18) Winter: POL Deduction	(19) Winter: Net Capacity (Rounded)
WESTERN AREA																		
a. Daulat Beg Oldi - Panamik	120	50	20	40	2.4	40	0	50	3.0	50	0	50	3.0	50	30	35	2.1	30
b. Chushul - Leh	120	100	20	80	4.8	80	0	100	6.1	90	0	100	6.1	90	30	70	4.2	70
c. Shipki La (pass) - Chini	45	90	20	40	nil	40	0	50	nil	50	0	50	nil	50	30	35	nil	30
d. Bara Hoti - Joshimath	90	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	30	35	nil	30
e. Lipulek La (pass) - Dharchula	90	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	30	35	nil	30
CENTRAL AREA																		
f. Khojarnath - Baling	90	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	25	42.5	nil	40
g. Nawakot - Dana	90	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	25	42.5	nil	40
h. Kyirong Pass - Nawakot	90	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	25	42.5	nil	40
i. Kodari Pass - Dhulikhel	40	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	25	42.5	nil	40
j. Rasua La (pass) - Kinglia	45	50	20	40	nil	40	0	50	nil	50	0	50	nil	50	25	42.5	nil	40

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APPENDIX "G" (continued)

(S) ESTIMATED NET SEASONAL CAPACITIES OF ATTACK ROUTES SOUTH OF THE SINO-INDIAN/NEPAL FRONTIERS

(1)	(2)	(3)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Route	Distance Miles	Capacity ST Pwd Per Day			Spring				Summer/Monsoon				Autumn				Winter			
		Max.	Min.	Difference	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)	% Climate Reduction	Reduced Max	POL Deduction	Net Capacity (Rounded)
EASTERN AREA																				
l. Yatung - Gangtok	34	500	100	400	5	480	8.0	470	15	440	7.5	430	0	500	25.8	480	20	420	7.5	410
m. Gangtok - Darjeeling	67	950	300	550	5	823	27.4	800	15	762	25.6	740	0	850	35.0	830	20	740	24.7	720
n. Darjeeling - Siliguri	30	2100	900	1200	5	2040	40.0	2000	15	1920	32.0	1800	0	2100	30.7	2070	20	1860	31.0	1830
o. Paro Dzong - Hasimara	130	200	0	200	5	190	6.7	180	15	170	5.6	160	0	200	7.4	190	20	160	5.6	150
p. Lhuzhung Dzong - Lhuntsi Dzong	30	50	0	50	5	47.5	Nil	50	20	40	Nil	40	0	50	Nil	50	10	45	Nil	40
q. Lhuntsi Dzong - Dewangiri	70	50	0	50	5	47.5	1.9	50	20	40	1.6	40	0	50	2.1	50	10	45	1.8	40
r. Dewangiri - Gauhati	55	500	0	500	5	475	12.0	460	20	400	11.2	390	0	500	14.0	490	10	450	12.6	440
s. Bum La - To dra	20	500	100	400	5	480	4.8	470	25	420	4.2	420	0	500	3.7	500	10	460	4.6	460
t. Tsetang - Tsona Gang Dzong	30	50	0	50	5	47.5	Nil	50	20	40	Nil	40	0	50	Nil	50	10	45	Nil	40
u. Tsona Gang Dzong - Dewangiri	70	150	0	150	5	140	7.0	130	20	120	6.0	110	0	150	7.5	140	10	135	6.7	130
v. Towang - Bondi La	70	100	0	100	5	95	3.3	90	20	80	2.8	80	0	100	3.5	100	10	90	3.2	90
w. Bondi La - Bazpur	110	500	0	500	5	475	23.7	450	20	400	20.0	390	0	500	25.0	490	10	450	22.5	430
x. Tongsa - Bathpalathang	70	50	0	50	5	47.5	Nil	50	20	40	Nil	40	0	50	Nil	50	10	45	Nil	40
y. Li-ma - Paring	50	50	0	50	5	47.5	2.1	50	20	40	1.7	40	0	50	2.2	50	10	45	1.9	40

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Annex I-A

PERSONNEL AND MATERIEL, INFANTRY DIVISION (STANDARD), CCA (U)

25X1

(Total Strength 13,914)

Personnel and Major Items of Equipment	Division Total	HQ & Staff	Signal Bn	Engr Bn	Recon Co	CW Co	Flame Thrower	AAAW Bn	Arty Regt	T/AG Regt	Inf Regts
Officers	1 715	193	40	40	10	10	9	51	195	129	1038
Enlisted	12,199	828	242	431	125	90	75	305	1233	590	8280
Total Personnel	13,914	1021	282	471	135	100	84	356	1428	719	9318
Pistol	2,836	157	40	49	46	10	9	51	193	184	2097
Cbn/Rfle 7.62-mm	7,069	451	187	331	9	70	58	254	907	262	4539
SMG, 7.62-mm	3,239	161	38	63	70	19	16	53	263	261	2235
LMG, 7.62-mm	306			27	9						270
HMG, 7.62-mm	135										135
AAMG, 12.7-14.5-mm	21							12			9
Mortar, 82-mm	81										81
Mortar, 120-/82-mm	27										27
Mortar, 160-mm	12								12		
RL, 40-/90-mm	81										81
RR, 57-/75-mm	27										27
RR, 75-/82-/107-mm	27										27
Gun AT, 57-/76-mm	27								12		
Gun, Fld, 76-mm	12								12		
How, 122-mm	12							12			
Gun, AAAW, 37-/57-mm	12									31	
Tank, Med, T-54/-34	31									12	
Aslt Gun, SU 76/100	12				3					2	
Armd Recon Veh	6						27				
Flame Thrower	27							15	66	29	120
Trk, cargo, 4x2/6x6	381	136		15				12	36		30
Trk, prime mover, 6x6	78								10		9
Trk, 3/4-T	21	2						1	2	9	6
Trk, ¼-T	29	4	3	4							3
Trk, Wrecker	6	3									
Ambulance	4	4									
Motorcycle, w/sidecar	50		12	4	9				2	17	6

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25X1

Personnel and Major Items of Equipment	Division Total	HQ & Staff	Signal Bn	Engr Bn	Recon Co	CW Co	Flame Thrower Co	AAAW Bn	Arty Regt	T/AG Regt	3 Inf Regts
CW Decontam Veh	4					2				2	
Mobile Shower Veh	2					2					
Horse, Mule, etc.	519+		12								507+
Cart, cargo	498+										498+
Bicycle	48		12								36
Telephone, Field	466		45	6				21	99	16	279
Radio, manpack	350		12		5			23	73	15	222
SWBD	33		2	1				1	4	1	24
Teletype	1+		1+								
Radio, Veh Mtd	52		3		2					46	

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Annex I-B

PERSONNEL AND MATERIEL, INFANTRY DIVISION (LIGHT), CCA (C)

25X1

(Total Strength: 13,195)

Personnel and Major Items of Equipment	Division Total	HQ & Staff	Signal Bn	Engr Bn	Recon Co	CW Co	Flame Thrower Co	AAAW Bn	Arty Regt	3 Inf Regts
Officers	1,586	193	40	40	10	10	9	51	195	1038
Enlisted	11,609	828	242	431	125	90	75	305	1233	8280
Total Personnel	13,195	1021	282	471	135	100	84	356	1428	9318
Pistols	2,652	157	40	49	46	10	9	51	193	2097
Cbn/Rifle, 7.62-mm	6,806	451	187	331	9	70	58	254	907	4539
SMG 7.62-mm	2,978	161	38	63	70	19	16	53	263	2295
LMG, 7.62-mm	306			27	9					270
HMG 7.62-mm	135									135
AAMG, 12.7-/14.5-mm	33							24		9
Flame Thrower	27						27			
Mortar 82-mm	81									81
Mortar, 107-/120-mm	27									27
Mortar, 160-mm	12								12	
RL, 40-/90-mm	81									81
RR, 57-/75-mm	27									27
RR, 75-/82-/107-mm	27									27
Gun, AT, 57-/76-mm	27									27
Gun, Mtn, 76.2-mm	24								24	
Trk, cargo, 4x2/6x6	83	20		15				8	20	21
Trk, ¼-T	9	2			3				1	3
Motorcycle, w/sidecar	26	2	6	2	3	5			2	6
Bicycle	12		12							
Horse, Mule, etc.	714+	135+	18+	12+					24+	507+
Cart, cargo	Unk	Unk	Unk	Unk					Unk	Unk
Telephone	450		45	6				21	99	279
Radio, manpack	335		15		8			23	73	222
Teletype	1+		1+							
SWBD	32		2	1				1	4	24
Boat, Rubber, 4-man	Unk			Unk						Unk
Boat, Rubber, 10-man	Unk			Unk						Unk

Annex I-C

PERSONNEL & MATERIEL, INFANTRY REGIMENT (Standard & Light), CCA (C)

	Infantry Regiment *	
	Standard	Light
Officers	346	346
Enlisted	2760	2760
Total Personnel	3106	3106
Pistols	699	699
Carbine/Rifle	1513	1513
Submachine gun	765	765
Light Machinegun	90	90
Heavy MG, 7.62-mm	45	45
AAMG, 12.7-mm	3	3
Mortar, 82-mm	27	27
Mortar, 120-/82-mm	9	9
RL, 40-/90-mm	27	27
Rcl Rfle, 57-/75-mm	9	9
Rcl Rfle, 75-/82-/107-mm	9	9
AT Gun, 57-/76-mm	9	9
Trk, cargo, 4x2/6x6	66	15
Trk, 3/4-T	3	3
Trk, 1/4-T	2	2
Wrecker	1	
Motorcycle w/sidecar	2	2
Bicycle	12	12
Telephone, field	93	93
Radio manpack	74	74
SWBD	8	8
Horse, Mule etc	169 +	322 +
Cart animal-drawn	166 +	319 +

* When operating independently

Annex 1-D

PERSONNEL & EQUIPMENT BD/MIS DIVISION, PLA (U)

(Total Strength 8,538)

25X1

Personnel & Major Items of Equipment	Div Total	HQ & Staff	Med Co	Transp Co	Signal Co	Recon Co	Guard Co	Engr Co	AAMG Co	Arty Bn	BD/MIS Regts (3)
Officers	860	85	14	8	11	10	7	9	10	46	660
Enlisted	7678	118	88	78	133	144	124	120	69	288	6516
Total Personnel	8538	203	102	86	144	154	131	129	79	334	7176
Pistols	857	85	14	8	11	10	7	10	10	42	660
Cbn/Rfle, 7.62-mm	3534			36	47	54	40	89	53	239	2976
SMG, 7.62-mm	1312			6	24	73	63	12	17	61	1056
LMG, 7.62-mm	282					9	6	6		3	258
HMG, 7.62-mm	54										54
AAMG, 12.7-mm	21								12		9
Mortar, 60-mm	84					3					81
Mortar, 82-mm	27										27
Gun, 76 -mm	12										12
Gun, Mtn, 76.2-mm	12									12	
Truck, cargo 4x2	15			15							
Truck 3/4-T	28		5		4						21
Truck, ¼-T	2	2									
Bicycle	82				10					3	75
Horse, Mule, etc.	461+			45	11	6		6	28	56	309
Carts, cargo	121+			15	3	2		2		24	75
Telephone	274				36					25	213
Radio, manpack	119				6	5		1	2	12	93
Radio Station	16				4						12
SWBD	19				3					1	15
Stretcher	30		12								18

Annex II A

AVERAGE DAILY RESUPPLY REQUIREMENTS FOR SELECTED CCA UNITS (C) 25X1

(SHORT TONS)

UNIT	CLASS I 100% TOE	CLASS I 85% TOE	CLASS II & IV 100% TOE	CLASS II & IV 85% TOE	CLASS III (1) 100% TOE	CLASS III (1) 85% TOE	CLASS V (2) 100% TOE	CLASS V (2) 85% TOE	TOTALS (Rounded) (3) 100% TOE	TOTALS (Rounded) (3) 85% TOE
1 Army Hq and troops, less Arty Regt	6.5	5.5	5.8	4.9	4.4	3.7	3.0	2.6	20	17
2 Army Arty Regt	2.4	2.0	2.1	1.8	6.0	5.1	20.0	17.0	31	26
3 Inf Div (Stand)	25.5	21.7	20.9	17.8	29.0	24.7	48.0	41.0	123	105
4 Inf Div (Light)	25.2	21.4	19.8	16.8	4.4	3.7	35.0	30.0	84	72
5 Armored Div	13.3	11.3	11.9	10.1	44.3	37.7	139.0	118.0	209	177
6 Anti tank Div	7.0	6.0	6.3	5.4	14.6	12.4	21.0	18.0	49	42
7 Arty Div (How)	10.7	9.1	9.6	8.2	25.8	21.9	68.0	58.0	114	97
8 Arty Div (Gun)	9.0	7.7	8.1	6.9	21.9	18.6	81.0	69.0	120	102
9 AAA Div	6.2	5.3	5.6	4.8	8.7	7.4	26.0	22.0	47	40
10 Cavalry Div	22.5	19.2	10.0	8.5	1.3	1.1	8.0	7.0	42	36
11 Airborne Div	10.3	8.8	15.4	13.1	-	-	54.0	46.0	80	68
12 Airborne Regt	2.9	2.5	4.4	3.7	-	-	16.0	14.0	23	20
13 Airborne Bn	0.7	0.6	1.1	0.9	-	-	4.0	3.0	6	5
14 Inf Regt (Stand)	6.0	5.1	4.7	4.0	3.8	3.2	8.0	7.0	23	19
15 Inf Regt (Light)	6.6	5.6	4.7	4.0	0.8	0.7	8.0	7.0	20	17
16 Indep Armored Regt	3.8	3.2	3.4	2.9	16.0	13.6	60.0	51.0	83	71

UNIT	CLASS I 100% TOE	CLASS I 85% TOE	CLASS II & IV 100% TOE	CLASS II & IV 85% TOE	CLASS III (1) 100% TOE	CLASS III (1) 85% TOE	CLASS V (2) 100% TOE	CLASS V (2) 85% TOE	TOTALS (Rounded) (3) 100% TOE	TOTALS (Rounded) (3) 85% TOE
17 Indep Engr Regt	[redacted]	5.2	8.4	7.1	1.0	0.9	1.0	1.0	14	12
18 BD/MIS Div	16.4	13.9	12.8	10.9	1.4	1.2	15.0	13.0	46	39
49 Indep Mtr Transp Regt	2.9	2.5	1.0	0.9	24.1	20.5	-	-	28	24

(1) Class III daily supply requirements in combat were computed for each gasoline-fueled vehicle at a basic displacement of 50 miles per day, plus a series of modifying factors. Combat requirements for diesel-fueled vehicles were based on estimates for Soviet Army diesel-fueled vehicle consumption rates--20 gallons of diesel oil per vehicle per day--and the factor of 243 gallons per short ton (packing included).

(2) Figures listed in this column are average supply requirements for all types of combat. For more specific information concerning ammunition expenditures under varying conditions of combat consult Annex IIB.

(3) All daily supply requirements are computed on an annual basis under varying conditions of combat except in the case of airborne units. Airborne unit figures are based on requirements during time committed with ammunition expenditures at rate of fifty percent of basis load daily.

25X1

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DAILY AMMUNITION REQUIREMENTS OF SELECTED CCA UNITS (1)

(IN SHORT TONS)

UNIT	Basic Load		Heavy Combat		Moderate Combat		Light Combat		Avg Daily Rqmt	
	100%	85%	100%	85%	100%	85%	100%	85%	100%	85%
Army Hq and Troops less Army Arty Regt	[illegible]	19	13	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Army Arty Regt	134	114	90	[illegible]	[illegible]	[illegible]	13	11	[illegible]	17
Inf Div (Standard)	214	771	191	[illegible]	112	[illegible]	[illegible]	[illegible]	[illegible]	31
Inf Div (Light)	234	199	140	119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30
Armored Div	[illegible]	789	557	473	[illegible]	[illegible]	[illegible]	[illegible]	139	118
AT Div	140	119	84	71	[illegible]	[illegible]	12	12	21	18
Arty Div (How)	456	388	274	233	160	136	[illegible]	[illegible]	69	58
Arty Div (Gun)	537	456	322	274	188	160	54	46	81	69
AAA Div	170	145	102	87	[illegible]	51	17	14	26	22

(1) Figures rounded to nearest ton.

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