



Director of  
Central  
Intelligence



# Use of Toxins and Other Lethal Chemicals in Southeast Asia and Afghanistan

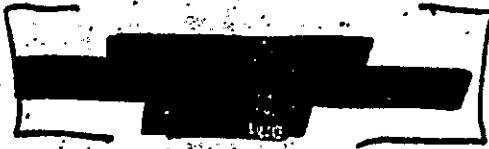
*Special National Intelligence Estimate*  
Volume I—Key Judgments

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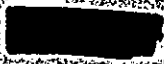
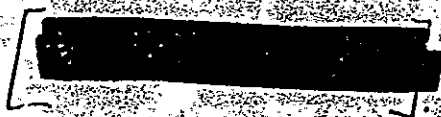
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USE OF TOXINS AND OTHER LETHAL  
CHEMICALS IN SOUTHEAST ASIA  
AND AFGHANISTAN

Volume I—Key Judgments





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THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS.

*The following intelligence organizations participated in the preparation of the Estimate:*

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organization of the Department of State.

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The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy


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SCOPE NOTE

This Estimate presents the results of an intensive review by the US Intelligence Community of all available evidence on chemical warfare activities in Laos, Kampuchea, Vietnam, and Afghanistan. It also takes a brief second look at intelligence holdings on the 1963-67 Yemeni civil war and at the Soviet chemical-biological warfare program. The Estimate does not consider the arms control and disarmament aspects of the problem, nor does it examine in any depth the threat implications flowing from the employment of chemical weapons in local conflicts. (u)

While the Intelligence Community is confident of the key judgments which follow, many uncertainties remain concerning the full scope of Soviet activities in the chemical-biological warfare sphere, particularly the USSR's research and development program. (u)

This volume presents the basic Estimate. Volume II, published separately, contains a large amount of supporting data and analysis on the subjects covered in volume I. Volume II also includes a series of technical annexes that provide tabulations of reported attacks, details on the sample analyses, a technical description of trichothecene toxins, a bibliography of Soviet publications on these toxins, and other supporting documents (u)





## KEY JUDGMENTS

### Laos

Lao and Vietnamese forces, assisted by Soviet logistics and supervision, have used lethal chemical agents against H'Mong resistance forces and villages, causing thousands of deaths since at least 1976. Trichothecene toxins have been positively identified as one of the classes of agents used, but medical symptoms indicate that irritants, incapacitants, and nerve agents also have been employed. (u)

### Kampuchea

Vietnamese forces have used lethal trichothecene toxins on Democratic Kampuchean troops and Khmer villages since at least 1978. Again, medical symptoms indicate that irritants, incapacitants, and nerve agents also have been used. (u)

### The Soviet Role in Southeast Asia

The one hypothesis that best fits all the evidence is that the trichothecene toxins were developed in the Soviet Union, provided to the Lao and Vietnamese either directly or through transfer of technical know-how, and weaponized with Soviet assistance in Laos, Vietnam, and Kampuchea. There is no intelligence at hand to support alternative explanations, such as completely independent manufacture and use by the Vietnamese. It is highly probable that the USSR also provided other chemical warfare agents. While the evidence on the Soviet role does not constitute proof in the scientific sense, the Intelligence Community finds the case to be thoroughly convincing. (u)

### Afghanistan

Soviet forces in Afghanistan have used lethal and casualty-producing agents on Mujahedin resistance forces and Afghan villages since the December 1979 invasion. There is some evidence that Afghan Government forces may have used chemical weapons provided by the USSR against the Mujahedin even before the invasion. No agents have been identified through sample analysis, but we conclude from analysis of all the evidence that attacks have been conducted with irritants, incapaci-



[REDACTED]

lants. nerve agents, phosgene oxide, and perhaps trichothecene toxins, mustard, lewisite, and unidentified toxic smokes. (u)

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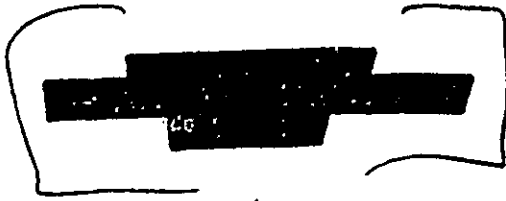
Implications

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## DISCUSSION

### Background

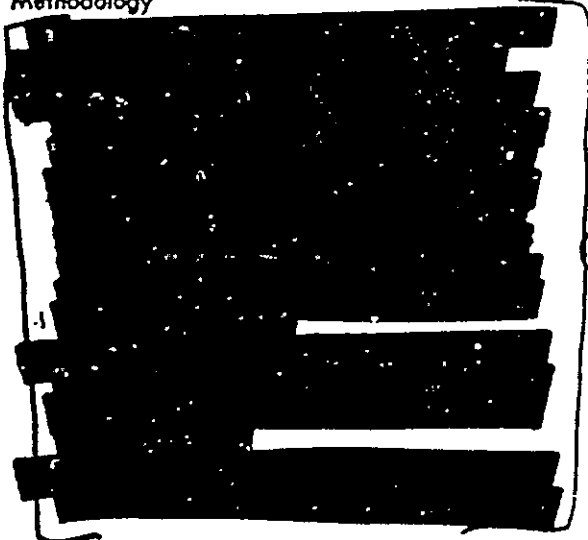
1. In September 1981 the US Government in a public declaration raised the probability that the trichothecene class of toxins—poisonous chemical substances extracted from biological material (specific molds)—was the mysterious lethal agent that had been used for many years in Laos and Kampuchea. This significant statement was precipitated by the discovery of high levels of trichothecene toxins in a vegetation sample collected shortly after a March 1981 Vietnamese chemical attack in Kampuchea. That public declaration, however, rested on a much broader base of evidence than the analysis of that sample. (u)

2. In April 1980 the Intelligence Community had already concluded (see volume II, annex F) that lethal agents had almost certainly been used against H'Mong tribespeople in Laos. There was less reliable evidence about the use of lethal agents in Kampuchea, mainly because of suspicions about the propaganda campaign of Pol Pot's Democratic Kampuchean (DK) forces. The DK claims were subsequently shown to be valid. It was also concluded that chances were about even that lethal agents had been used in Afghanistan. There was little doubt by this time that riot control agents and some form of incapacitants had been used in all three countries, although not specifically mentioned in the April 1980 assessment. Since mid-1980, sufficient additional evidence has allowed a much firmer Intelligence Community judgment than that stated in the April assessment. There is now no doubt that deaths and casualties have resulted from chemical attacks in all three countries. (u)

\* Trichothecene toxins, like all other toxins, are chemical compounds derived from biological material. For purposes of this Estimate, toxins are characterized as chemical warfare agents. Their manufacture, however, would most likely take place in biological warfare facilities, even if the toxins were synthetically produced. (u)

3. Analysis of additional samples from Laos and Kampuchea has revealed at least four trichothecenes, further supporting our conclusion that toxins were used. A review of all the reports indicates the use of many different chemical agents, means of delivery, and types of chemical attacks. In some cases, the symptoms are typical of those caused by trichothecenes, but in many cases the symptoms suggest other agents, which we have not been able to identify through sample analysis. Significant differences as well as similarities have surfaced in the reports from the three countries. The evidence from each country, therefore, is described separately, with attention drawn to similarities where appropriate. A section on the 1963-67 civil war in Yemen is included (see volume II, chapter VI) because of the striking similarities between the chemical warfare activities reported during that conflict and what has been observed in Southeast Asia and Afghanistan. (u)

### Methodology



(LTS)



b7(3)



tion that chemical agents have been used on their people. Rather it was the US Government, other governments, and private individuals from many countries that publicized the use of chemical agents and that provided the evidence to international organizations. On the other hand, there were early indications that Pol Pot's Democratic Kampuchean resistance did engage in an organized propaganda campaign on chemical agent use. These indications made us very cautious about accepting DK allegations, which increased markedly after the chemical attacks in Laos were publicized. For Kampuchea, therefore, we were particularly insistent in our efforts to confirm allegations made with sources of information that in no way could be part of a propaganda or deception campaign. (u)

5. After the data base was organized to permit comparative analysis, the study focused on three separate questions.

- Have lethal and other casualty-producing agents been used in Southeast Asia and Afghanistan?
- What are these agents and how and by whom are they employed?
- Where do the agents originate and how do they find their way to the field? (u)

6. Although the evidential base differs for each country, the analytic approach used was the same. The testimony of eyewitnesses—date, place, and type of attack—was matched against information from defectors, journalists, and international organizations and sensitive information that often pinpointed the time and place of chemical attacks. In addition, the intelligence files on military operations in the areas where chemical attacks had been reported were searched to establish whether air or artillery strikes took place or whether there was fighting in the areas where chemical agents were reportedly used. In all three countries, we identified a number of instances in which eyewitness accounts could be correlated with information from other sources. (u)

7. There is no evidence of any systematic propaganda campaign having been mounted by the H'Mong or the Afghan resistance forces to promote the allega-

Laos

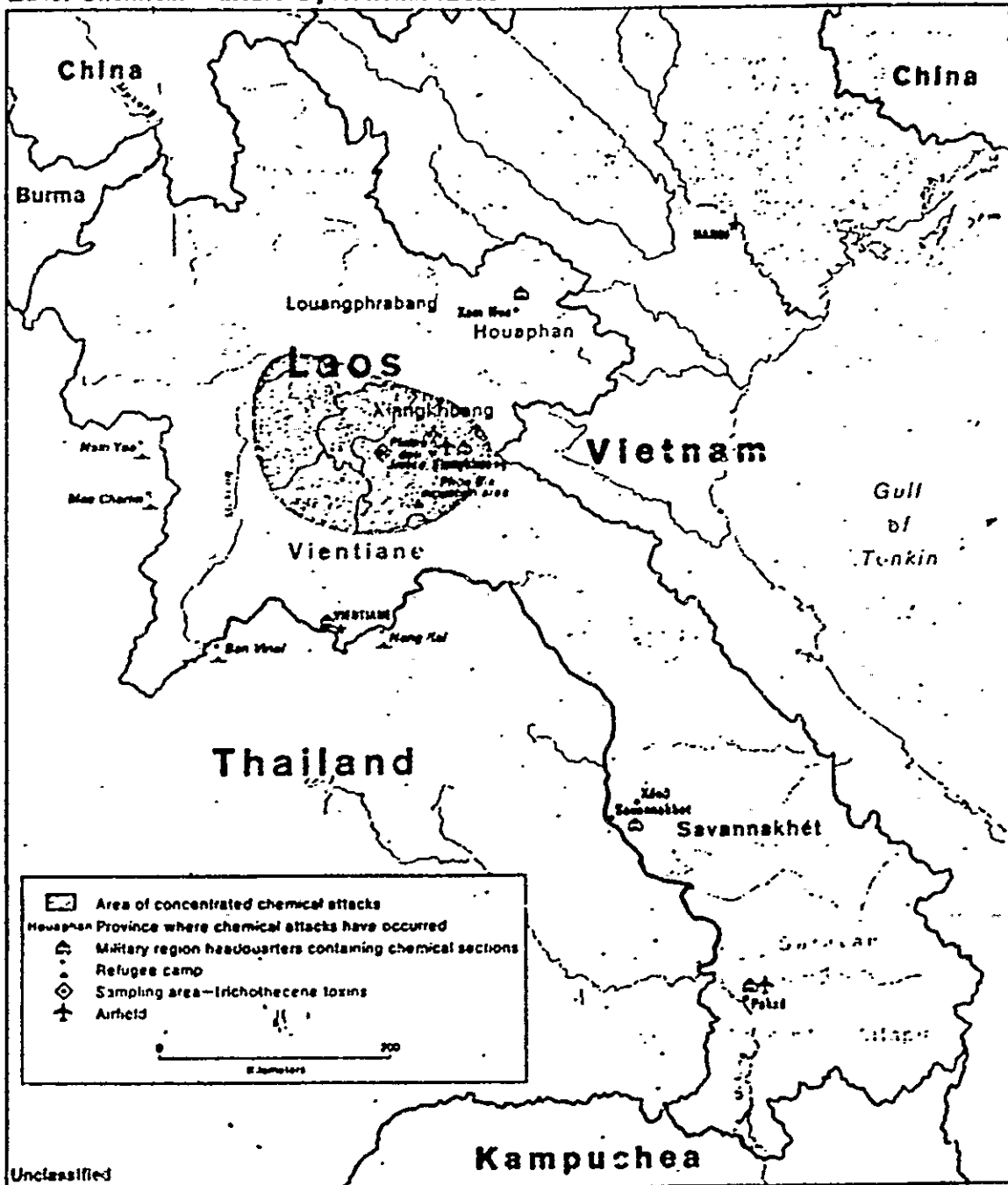
8. Reports of chemical attacks in Laos date from the summer of 1975 to the present. These reports describe 261 separate attacks in which at least 6,504 deaths were cited as having resulted directly from exposure to chemical agents. (u)

9. The actual number of deaths is almost certainly much higher, because the figure above does not take account of deaths in attacks for which no specific casualty numbers were reported. The greatest concentration of reported use of chemical agents occurred in the area where the three provinces of Vientiane, Xiangkhoang, and Louangphraiang adjoin (see map, figure 1). This triborder region accounted for 77 percent of the reported attacks and 83 percent of the chemical-associated deaths. Most of the reported attacks took place in 1978 and 1979. In the past two years, reporting has indicated a low level of chemical activity but continuing high death rates among unprotected and untreated victims—only seven chemical attacks were reported in the fall of 1981, for example, but 1,034 deaths were associated with those incidents. (u)

10. With very few exceptions, these reports are from HUMINT sources, particularly from H'Mong refugees.



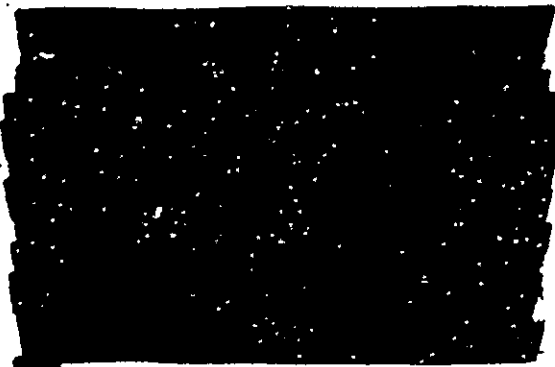
Figure 1  
 Laos: Chemical Warfare Operational Areas



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(S)  
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In June 1981 a group of ethnic Lao refugees from Na Nhao reported that a helicopter from Vientiane had dropped "poison" into the stream near their village.

11. One possible explanation for the difficulty in obtaining corroborative data for Laos may simply be the nature of the fighting there. There have been few major operations. Rather, the reports reflect numerous minor engagements between the opposing forces, and results of these encounters are rarely reported. This is consistent with the observation that the resistance forces are splintered, operating in small, discrete units that emphasize sabotage and unconventional warfare. Finally, in nearly all cases, the chemical use reported has been directed against villages, in the absence of obvious combat operations. This substantiates a Lao pilot's claim that the Vietnamese and Laotian military commands were engaged in a "H'Mong extermination" campaign. (U)

12. Of particular interest are the circumstances surrounding the collection of two physical samples that were found to contain lethal toxins. The first sample was collected after a 13 March 1981 attack on a village between the villages of Muony Chai and Phakhao in the Phou Bia region. In this case, a large two-engine plane reportedly sprayed a mist of a moist, yellow, sticky substance, two villagers and all village animals died. The second sample is from Ban Thongnak, another village in the Phou Bia region. That sample was collected following a 2 April 1981 attack in which a jet aircraft reportedly sprayed a yellow substance; 21 of the 450 villagers died. Seven separate chemical attacks, resulting in 218 deaths, were reported to have occurred in this region in the spring of 1981. (U)

13. It is significant that these attacks took place following a period of escalation in overall resistance activities in the Phou Bia area in the winter of 1980-81. During that period, joint suppression operations by LPLA and Vietnamese Army (PAVN) forces had achieved only limited success, perhaps spurring both forces on to greater effort. The more intense use of chemical weapons may have been part of this effort. (U)

14. Every qualified interrogator who systematically interviewed the H'Mong refugees concluded that the latter had been subjected to chemical attacks. For example, the US Government medical team returned from Thailand in 1979 convinced that several unidentified chemical warfare agents had produced the symptoms described by the refugees. It was the testimony of a Lao pilot who flew the chemical warfare missions that helped dispel any lingering suspicions that the refugees had fabricated or embellished the stories. His detailed description of the Lao, Vietnamese, and Soviet program to defeat the H'Mong resistance with chemical agents appears in volume II, chapter I. (U)

15. The Lao pilot described the chemical rocket he had fired as having a more loosely fitting warhead than a conventional rocket. In 1977 a H'Mong resistance leader found a US 2.75-inch rocket with a modified Soviet warhead that fits this description. In further corroboration, a reliable Thai source reported that US 2.75-inch rockets were fitted with lethal chemical warheads by Soviet and Vietnamese technicians at facilities in Vientiane as well as in Xiangkhouang and Savannakhet Provinces. (U)



(S)  
(U)  
(U)



[REDACTED]

Kampuchea

17 For Kampuchea we have reports of 124 separate attacks, from 1978 to the present, in which lethal chemicals caused the deaths of 1,014 individuals. Here again, the mortality figure represents a minimum because some reports state only that there were deaths and do not provide a number. The earliest reports cite attacks in Ratanakiri Province, in the northeastern corner of the country (see map, figure 3). Reports from 1979 to the present show the use of lethal chemicals primarily in the provinces bordering on Thailand. The greatest use of chemical agents apparently has been in Battambang Province (51 reported incidents). Pursat Province has suffered the next highest frequency, with 25 reported incidents. These numbers are consistent with the overall high level of military activity reported in the border provinces. (u)

[REDACTED]

(S)  
(S)

[REDACTED]

(S)  
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(DS)  
(S)  
[REDACTED]

21. US analysis of contaminated vegetation samples from the March 1981 attack showed high levels of three trichothecene toxins in a combination that we would not expect to be found in a natural outbreak in this environment. These three trichothecenes at the levels found on the vegetation would produce the vomiting, skin irritation and itching, and bleeding symptoms. Water samples taken from the area of the same attack also contained trichothecene toxins. Control samples from nearby areas confirmed that these toxins are not indigenous to the locale. (Details on the sample analysis appear in volume II, annex D, and the medical analysis is in volume II, annex E) (u)

[REDACTED]

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11  
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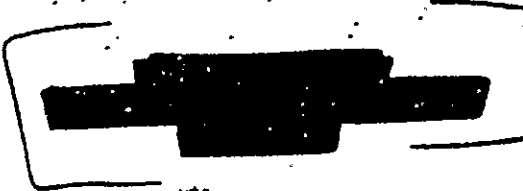
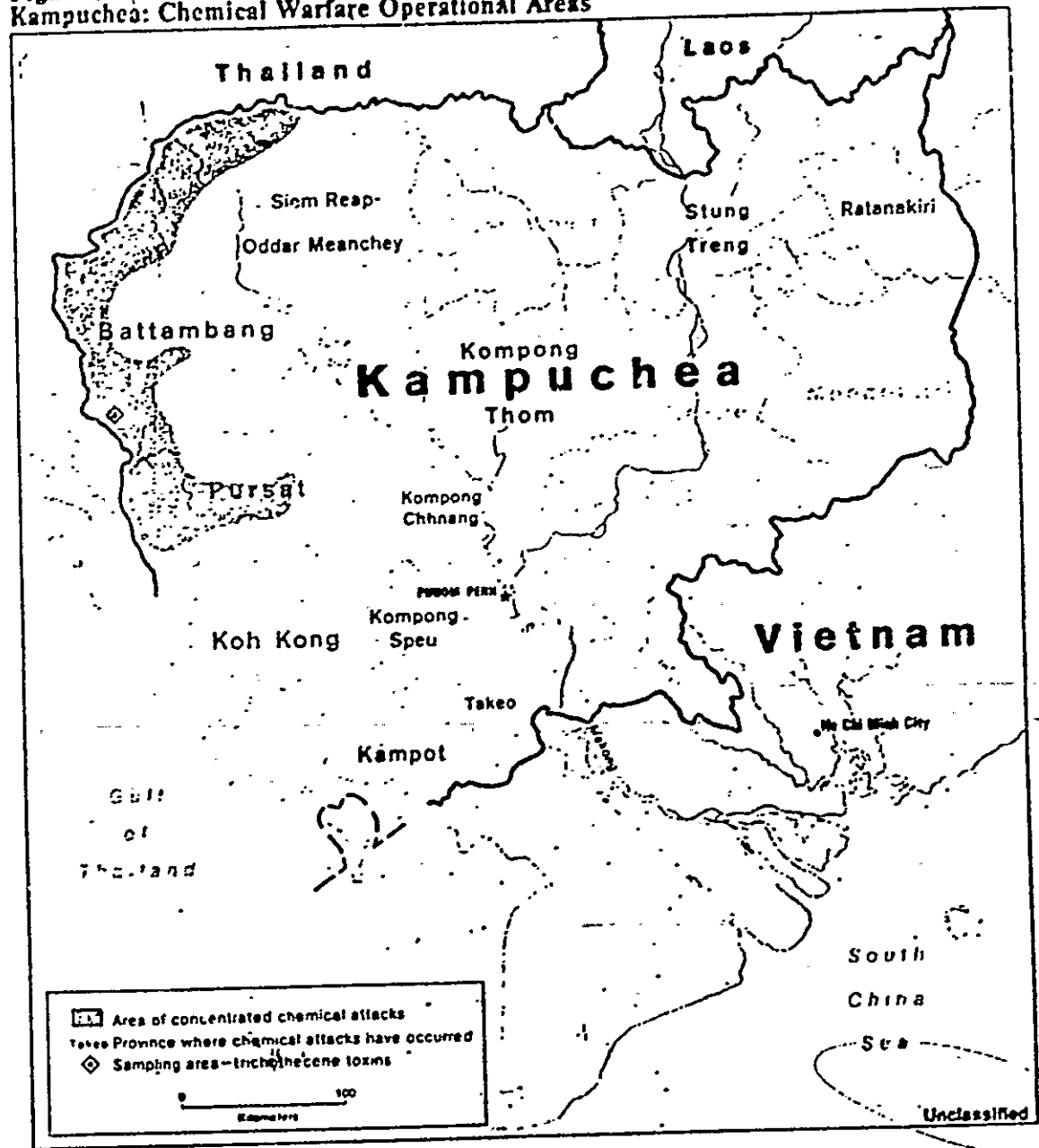


Figure 3  
Kampuchea: Chemical Warfare Operational Areas



[REDACTED]

(S)(3)

(S)(1)

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16. The chemicals used in the 19 September Takong attack were dispersed (according to the DK soldiers affected) as a gas or powder, and as a poison to water. The gas or powder was released from containers by tripwires in the area of the rear forces. This description is consistent with the other reporting for this area and time. (u)

[REDACTED]

23. In Kampuchea as in Laos, the period of late 1980 through spring 1981 was one of intensified Vietnamese operations to suppress the resistance, and the Vietnamese may have considered the use of toxins an effective means of breaking the will of the opposing forces. (u)

[REDACTED]

[REDACTED]

Afghanistan

(S)(3)

(S)(1)

[REDACTED]

29. Attacks with chemical weapons against the Mujahedin in Afghanistan were reported as early as six months before the Soviet invasion on 27 December 1979. Five separate chemical attacks in this preinvasion period were reported in eastern Afghanistan, but the evidence for this period is inconclusive. The reports specify only that Soviet-made aircraft were used, with no clear identification of Soviet or Afghan pilots, or of the specific agents used.

[REDACTED]

[REDACTED]

(2)

[REDACTED]

[REDACTED]

30 For the period from the summer of 1979 to the present, we have reports of 43 separate chemical attacks with more than 3,000 chemical-associated deaths (see map, figure 4) Ten separate chemical attacks, killing considerable numbers of persons, were reported in the first three months of 1980 All of the reports came from northeastern Afghanistan and provide the highest percentage of reported deaths. By the spring and summer of 1980, chemical attacks were reported to have occurred in all areas of concentrated resistance activity. Reports of chemical weapon use in 1981 essentially parallel 1980 reporting with respect to frequency and location of attack. Of the 43 chemical attack reports, 36 have come from human sources, including Afghan Army deserters, Mujahedin resistance fighters, journalists, and US physicians. For 24 of the reported 43 attacks we have additional independent evidence supporting allegations of chemical attacks.

[REDACTED]

[REDACTED]

(3)  
(U)

[REDACTED]

[REDACTED]

[REDACTED]

35. Victims of Soviet attacks, conducted to flush them from caves, describe symptoms that cannot be associated with riot control agents like CN and CS or even Adamsite. Medical examinations of some of the victims include reports of paralysis, other neurological effects, blisters, bleeding, and sometimes death. While none of the agents being used in Afghanistan have been positively identified through sample analysis, it seems clear that the agents being used are far more toxic than the irritants cited above. (u)

[REDACTED]

[REDACTED]

[REDACTED]



**Figure 4**  
**Afghanistan: Chemical Warfare Operational Areas**



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### What Chemical Agents Are Being Used?

39. The specific chemical agents being used in Laos, Kampuchea, and Afghanistan cannot be determined without collection and analysis of at least one of the following: environmental samples contaminated with agent, the munitions used to deliver agents, or biological specimens from victims of an attack. A study by medical-toxicological experts of symptoms exhibited by individuals exposed to toxic agents does provide a good indication of the general class of chemical agent used. Thus, the range of clinical manifestations from chemical agents as reported by a US Army investigative team resulted in the determination that nerve agents, irritants such as CS, and a highly toxic hemorrhaging chemical or mixture of chemicals were used in Laos. Other medical-toxicological personnel arrived at the same determination and further indicated that toxins such as the trichothecenes were a probable cause of the lethal hemorrhaging effect seen in Kampuchea as well as Laos. Symptoms reported by the DK in Kampuchea and the Mujahedin in Afghanistan were in many cases similar to those reported by the H'Mong in Laos. In addition, symptoms reported from Afghanistan and Kampuchea indicated that a highly potent, rapid-acting incapacitant "knockout" chemical also was being used. Mujahedin victims and witnesses to chemical attacks reported other unusual symptoms, including a blackening of the skin, severe skin irritation with multiple small blisters and severe itching, severe eye irritation, and difficulty in breathing—suggesting that phosgene oxime or a similar substance was used. (U)

40. Collecting samples possibly contaminated with a toxic agent during or after a chemical assault is difficult under all circumstances but particularly when the assault is against ill-prepared people without gas masks and other protective equipment. Obtaining contaminated samples that will yield positive traces of specific chemical agents is dependent on a number of factors. These include the persistency of the chemical, the ambient temperature, rainfall, wind conditions, the media on which the chemical was deposited, and the time, care, and packaging of the sample from collection to analysis in a laboratory. Many standard chemical warfare agents are nonpersistent and disappear from the environment within a few minutes to

[REDACTED]

[REDACTED]



several hours after being dispersed. These include, for example, the nerve agents sarin and tabun; the blood agents hydrogen cyanide and cyanogen chloride; the choking agents phosgene and diphosgene; and the urticant phosgene oxime. Other standard CW agents—such as the nerve agents VX and thickened zoman and the blistering agents sulfur mustard, nitrogen mustard, and lewisite—may persist for several days to weeks depending on weather conditions. The trichothecene toxins have good persistency but may be diluted to below detectable concentrations by adverse weather conditions. To maximize the chances of detection, sample collections should be made as rapidly after a chemical assault as possible, and with many agents this means minutes to hours. Under the circumstances of Southeast Asia and Afghanistan this has simply not been possible. While numerous samples were collected, few of them held any realistic prospect of yielding positive results. It is fortunate that trichothecenes are sufficiently persistent to allow detection several months after the attack. (u)

41. Samples have been collected from Southeast Asia since mid-1979 and from Afghanistan since May 1950. To date about 50 individual samples—of greatly varying types and usefulness for analytical purposes—have been collected and analyzed for the presence of traditional CW agents, none of which have been detected. On the basis of recommendations by medical and toxicological experts and of findings by the CSL, many of the samples have been analyzed for the trichothecene group of mycotoxins. Four samples, two from Kampuchea and two from Laos, were found to contain high levels of trichothecene toxins. Preliminary results of several additional samples indicate the presence of trichothecenes or their metabolites, but quantification of their levels is pending. Details concerning the samples, including the circumstances of their collection, the analysis, and the results, are provided in volume II, annex B. (u)

42. The accompanying table lists the chemicals and their probability of use in Afghanistan by Soviet and, in Southeast Asia, by Vietnamese and Laotian forces. The judgments shown in this table are based on sample analysis, on collateral and special intelligence, and on medical and toxicological evaluations. (u)

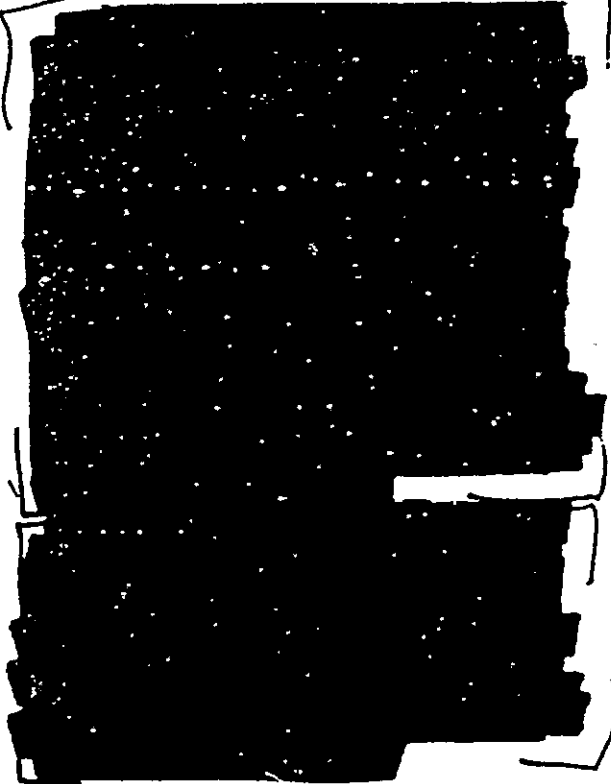
**Degrees of Confidence in Identification of Specific Classes of Chemicals Used in Southeast Asia and Afghanistan\***

	Laos	Kampuchea	Afghanistan
Trichothecene toxins	Confirmed	Confirmed	Suspected
Nerve agents	Probable	Probable	Probable
Irritants	Probable	Probable	Probable
Vesicants and urticants	Suspected	Suspected	Probable
Incapacitants	Suspected	Probable	Probable

\* The confidence levels shown refer to the identification of specific chemicals used, not to the probability that some form of lethal chemical was used. We consider the letter a certainty.

This table is unclassified.

**Soviet Chemical Warfare Activities**



45. To our knowledge, none of the four countries most recently involved with CW activities—Vietnam, Laos, Kampuchea, and Afghanistan—has any large-



[REDACTED]

scale facility or organization for the manufacture of chemical and biological materials. Nor are they known to have produced even small quantities of chemical warfare agents or munitions. The technical problems of producing large quantities of weapons-grade toxin, however, are not so great as to prevent any of the four countries from learning to manufacture, purify, and weaponize these materials. It is highly unlikely, however, that they could master these functions without acquiring outside technical know-how. The only country known to be providing chemical warfare assistance to these countries is the Soviet Union. (u)

46. The Soviets have had advisers and technicians working in Vietnam, Laos, and Kampuchea for many years, but not until early 1979 did evidence connect the Soviet military directly with chemical warfare activities. The evidence is quite conclusive.

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12-1 (u)

[REDACTED]

(b)(3)

[REDACTED]

### The Yemen Experience

48. Additional evidence that the Soviets are prepared to supply toxins and other lethal agents to client states is provided by the Yemen case, which is reassessed in volume II, chapter VI, and summarized here (u)

[REDACTED] (u)  
27 (u)  
27 (3)

50. In January 1967 a new agent or combination of agents was dispersed by Soviet-made IL-28 light bombers. The agent was remarkable for its extremely rapid and devastating effect on humans, animals, and vegetation. This material was not identified conclusively either. A British officer claims that he clearly identified as a Soviet the dead pilot of a plane shot down after dropping chemical bombs (u)

51. There are striking similarities between the symptoms described as resulting from the attacks in 1967 and those that have been reported from Southeast Asia and Afghanistan. We cannot positively state that trichothecene toxins were used by the Soviets in Yemen, but that explanation fits the evidence better than any other. Samples that were collected by reputable sources did not reveal any known chemical warfare agents. At that time toxins were not suspected and the special analytic techniques that revealed trichothecene toxins in 1981 were not developed in 1967 (u)

52. There is also a striking similarity between the tactics used in Afghanistan in 1979 and Yemen in 1967 against resistance forces operating from sanctuaries in rugged terrain. The use of the IL-28 bombers in both places is particularly striking.

(b)(3)

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[REDACTED]

## CONCLUSIONS

*Laos.* We conclude from all the evidence that selected Lao and Vietnamese forces, under direct Soviet supervision, have employed lethal trichothecene toxins and other combinations of chemical agents against the H'Mong resistance forces, including their villages, since at least 1976. Thousands have died, have been severely injured, or were driven from their homeland by the use of these agents. (u)

*Kampuchea.* The evidence strongly supports the conclusion that the Vietnamese have similarly been using lethal trichothecene toxins and other combinations of chemical warfare agents on Democratic Kampuchean forces and other resistance groups since at least 1978. (u)

*Afghanistan.* We conclude that Soviet forces in Afghanistan have used a wide variety of lethal and nonlethal chemical agents on Mujahedin resistance forces and Afghan villages since the Soviet invasion in December 1979. Afghan Government forces probably used chemical weapons before the Soviet invasion, but we cannot identify the types of agents used.

[REDACTED]

### Motivation for Chemical Weapon Use

[REDACTED] we consider the question of motivation. Is there a military-strategic or tactical rationale for the systematic use of chemical weapons in Laos, Kampuchea, Afghanistan, and Yemen? We conclude that the military problems faced in all four countries—as viewed from the perspective of the Soviets and their allies—make the use of chemical weapons a militarily effective way of breaking the will and resistance of stubborn guerrilla forces operating from relatively inaccessible protected sanctuaries. These weapons offer substantial advantages over conventional weapons. In all four countries the resistance was able through conventional means to frustrate Soviet and client-state objectives of extending and consolidating control over the countries attacked. The Soviets probably reasoned that attainment of these objectives—as quickly and cheaply as possible—justified use of chemical weapons and outweighed a small risk of exposure and international condemnation. They may well have calculated that they and their allies could successfully counter or deny charges that chemical weapons had been used, recognizing that it would be as difficult to compile incontrovertible evidence from Southeast Asia and Afghanistan as it was from Yemen in the 1960s. In addition, the Soviet military very likely consider these

[REDACTED]

remote areas as providing unique opportunities for the operational testing and evaluation of chemical weapons under various tactical conditions.

[REDACTED]

[REDACTED]

(b)(1)  
(b)(7)  
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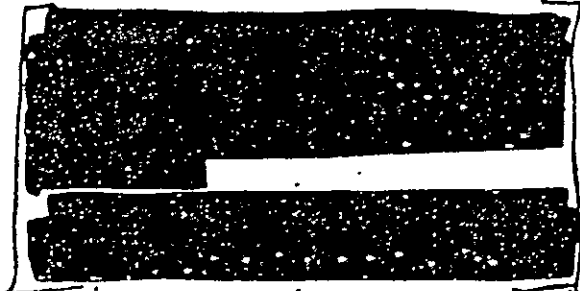
[REDACTED]


72  
[REDACTED]



## IMPLICATIONS

In volume II, chapter III, we consider and reject a number of alternative explanations for the phenomena observed. One hypothesis best fits all the evidence: *the Soviets had begun to weaponize toxins by at least the early 1960s and have used these weapons in Laos and Kampuchea, and possibly in Yemen and Afghanistan.*



 Indeed, the Soviet military consider the employment of chemical weapons by their forces and those of their allies to be an acceptable and effective means of suppressing resistance even in local wars.

As a result, countries like Thailand, Pakistan, and China may develop an even greater sense of alarm in contemplating conflict with the Soviet Union or its allies. Chinese experts are actively reanalyzing their evidence on Vietnamese use of chemical agents against their forces in 1979. Beyond these considerations, there is growing international concern that lethal chemical weapons may become an accepted method of limited warfare in conflicts throughout the Third World. *ERIC*



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