

Appendix III
of *Neilands* 4034
Excerpts from *Department of the Army*
Training Circular 3-16, April 9, 1969

Appendix III

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US Army 1410

*TC 3-16

TRAINING CIRCULAR
NO. 3-16

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 9 April 1969

**EMPLOYMENT OF RIOT CONTROL AGENTS, FLAME, SMOKE,
ANTIPLANT AGENTS, AND PERSONNEL DETECTORS
IN COUNTERGUERRILLA OPERATIONS**

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*This circular supersedes TC 3-16, 11 July 1966.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1. **Purpose.** This training circular provides guidance on the employment of riot control agents, flame, smoke, antiplant agents, and personnel detectors in counter guerrilla operations. It emphasizes the principles and techniques compatible with the environment, type of operations, and nature of the enemy. It will also assist in conducting realistic training based on materiel available and type of operations.

2. **Scope.** a. This training circular provides a consolidated source of information on the technical aspects and employment concepts for experimental and recently standardized items of equipment and munitions and for recently developed field expedients. It consolidates and supplements the limited amount of information on this materiel which is published in the form of maintenance packages, draft technical bulletins, and other miscellaneous publications. This training circular repeats information presented in other Department of the Army publications only as required for clarity and consistency.

b. A listing of the standard items of materiel which are being used in the field but for which employment is not unique to counter guerrilla

operations is included at the beginning of each chapter where applicable. These items are listed in appendix B with references to Department of the Army publications which cover tactical and technical training information.

c. The general guidance offered in this training circular is oriented toward the environment and combat conditions of Southeast Asia and is applicable without modification to both nuclear and nonnuclear warfare.

d. The information in this training circular is also applicable to internal defense and/or internal development operations.

3. **Changes and Comments.** Users of this training circular are encouraged to submit recommended changes and comments to improve the publication. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to insure understanding and complete evaluation. Comments should be prepared using DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commandant, U. S. Army Chemical Center and School, Fort McClellan, Alabama 36201.

Section II. CONSIDERATIONS OF WEATHER AND TERRAIN

4. **General.** Chemical activities are characterized by dependence on weather and terrain conditions. These conditions are wind speed and direction, temperature gradient, air temperature, humidity, precipitation, amount and type of vegetation, terrain contour, and type of soil. FM 3-10 and TM 3-240 discuss the effects

of these conditions in detail. Since this publication is oriented toward combat conditions in Southeast Asia, it is necessary to consider the general climatic conditions and peculiarities in that part of the world. An understanding of the type of weather that may be expected and its effects on the terrain and vegetation will

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provide valuable information for employing riot control agents, flame, smoke, antiplant agents, and personnel detectors effectively for maximum immediate, intermediate, and long-range effects.

5. Description of Weather and Terrain in Southeast Asia. a. Weather (Meteorological) Factors.

(1) Most of North Vietnam has a humid subtropical climate with dry winters and wet summers. The countries of Laos, Thailand, Cambodia, and the areas of South Vietnam and North Vietnam west of an imaginary line between the cities of Vinh in North Vietnam and Pleiku and Nha Trang in South Vietnam are in the tropical savanna climatic region of Southeast Asia (fig 1). Temperatures are strictly tropical in the south, but merge into subtropical temperatures in the Gulf of Tonkin provinces. The rainfall brought by the southwest monsoon (fig 1) during the months of May through August is moderately heavy.

(2) Burma and the area east of the imaginary line between the cities of Vinh, Pleiku, and Nha Trang to the China Sea (fig 1) have a tropical rainy climate and receive sufficient rainfall throughout the year to support the tropical rainforest type of vegetation; however, the precipitation is seasonal. It is heavy from September to December due to the northeast monsoon (fig 1) and light for the remainder of the year when winds are mostly offshore. The temperatures during the summer often exceed 100° F. The winter months bring a drop in temperature, but the cold weather is usually accompanied by fogs. Table I shows a comparison of the climates in different parts of Southeast Asia.

b. Terrain Factors.

(1) The natural vegetation in Southeast Asia ranges from dense tropical jungles, with overhead canopy in excess of 80 percent, to tall shrubs or scrub forests, to tall grass (often called elephant or marsh grass), to cultivated fields.

(2) In wet rainforest regions, as in Southeast Asia, where precipitation exceeds evaporation, the water carries much of the soluble material (lime) from the soil and leaves it oversupplied with iron and aluminum compounds. Rainforest soils are among the earth's least productive soil groups and are quickly exhausted when subjected to continuous cropping. In contrast to the rainforest soils, the alluvial soils in the regions of rivers are highly fertile in nature. The delta regions of the Mekong, Chao Phraya, Red, and Irrawaddy Rivers are characterized by this type of soil. In these areas the ground is rich in mineral plant food and is favorable for continuous cropping.

(3) The lowlands and delta regions of Southeast Asia are mainly utilized in the production of rice, but other products include cotton, sugarcane, and coconuts. Tea, tobacco, rubber, and coffee are grown in the well-drained intermediate levels, and cereals and beans are grown in the higher valleys. The rugged mountain areas are well forested with broadleaf evergreen and deciduous trees, mainly sandalwood and teakwood.

6. **Effects of Weather and Terrain.** Almost all areas of Southeast Asia are conducive to guerrilla operations. The dense rainforest jungles in the mountainous highland regions and the tall marsh grasses, inland rivers, and canals of the river delta regions offer numerous hiding places and avenues of escape to the guerrilla. Extensive employment of riot control agents, flame, smoke, and antiplant agents should be considered to achieve the element of surprise and to reduce concealment. The primary factor affecting the employment of riot control agents, flame, smoke, and antiplant agents is the micrometeorology of the specific region under consideration. Factors affecting the micrometeorology of a region include the synoptic situation (general weather of the area), topography, vegetation, and type of soil. FM 3-10 and TM 3-240 discuss these micrometeorological factors in detail.

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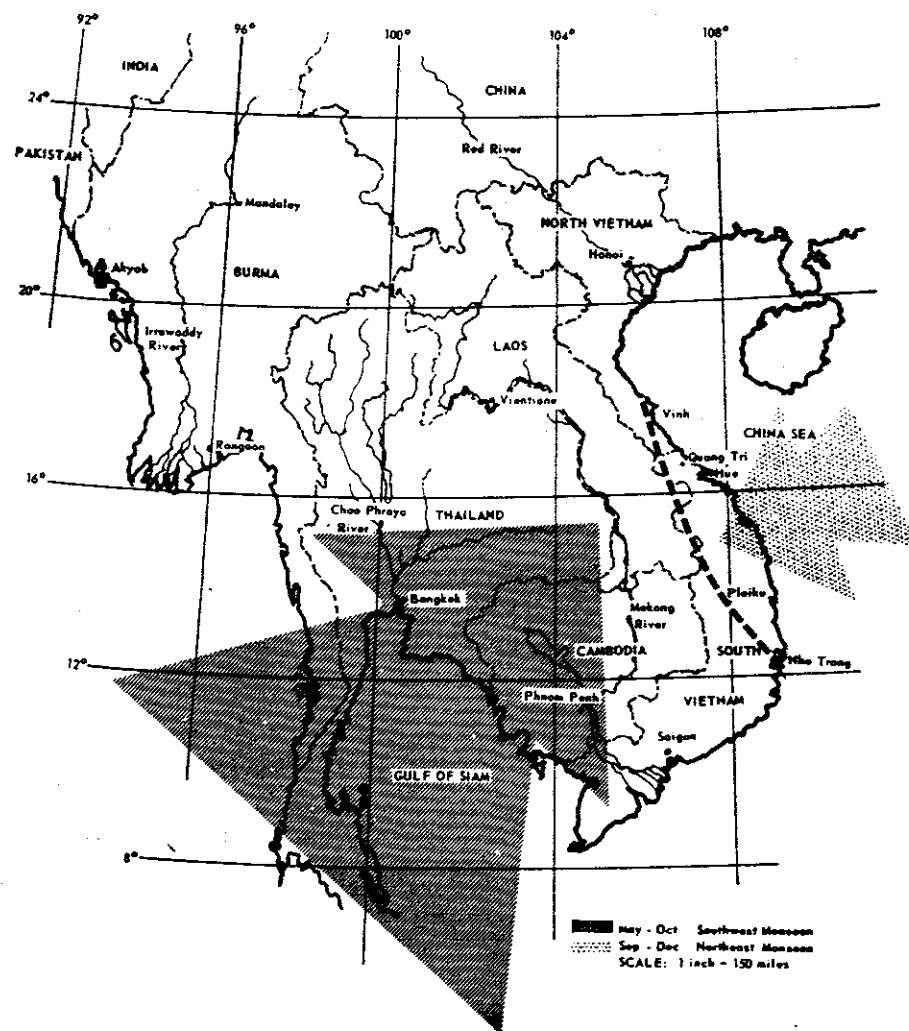


Figure 1. Southeast Asia.

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Table 1. Climates of Southeast Asia

| Tropical savanna and tropical rainy climate of Southeast Asia | Mean temperature (°F) | | | Average precipitation (inches) | | |
|---|-----------------------|---------------|---------------|--------------------------------|---------------|--------------|
| | Year | Coolest month | Warmest month | Year | Wettest month | Driest month |
| Barma: | | | | | | |
| Rangoon..... | 81 | Jan 77 | Apr 88 | 100 | Jul 21.4 | Jan 0.21 |
| Mandalay..... | 86 | Jan 71 | Apr 90 | 33.1 | May 5.3 | Jan 0.1 |
| Akyab..... | 78 | Jan 70 | May 84 | 204 | Jul 53.7 | Jan 0.1 |
| Cambodia: | | | | | | |
| Phnom Penh..... | | | | 55.8 | Oct 10.9 | Jan 0.2 |
| Thailand: | | | | | | |
| (Central)..... | | | | 60 | | |
| North Vietnam: | | | | | | |
| Hanoi..... | 74 | Jan 62 | Jun 85 | 63 | Jul 13.4 | Jan 0.9 |
| South Vietnam: | | | | | | |
| Saigon..... | 81.9 | Dec 78.8 | Apr 85.8 | 77.4 | Sep 13.4 | Feb 0.1 |
| Quang Tri..... | | | | 99.0 | Nov 22.0 | Feb 2.1 |
| Hue..... | 77.7 | Feb 67.5 | Jun 85.1 | 117 | Oct 26.3 | Mar 1.8 |
| Nha Trang..... | 80.3 | Jan 75.5 | Aug 84.1 | 54.0 | Nov 13.8 | Apr 0.9 |

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