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The study describes the Civil Defense status in Central Europe and compares it with an "ideal" Civil Defense model. All nations in Central Europe have organized a warning and alarm system ; disaster relief and rescue organizations are operational in all countries. The protection of the population in terms of shelters and/or evacuation programs is, with the exception of Switzerland, weak or not existing.

The effects of modern warfare, to include chemical and nuclear weapons on the civil population are discussed. The study shows that an unprotected and poorly informed population is extremely vulnerable ; by staying at home some protection can be provided by the "Central-Europe-type" buildings and by a prewar information program.

Considering the vulnerability of the population, the dynamics and the lethality of the modern battlefield, and the "city hugging" tactics of the threat forces this study shows that the Civil Defense gap in Central Europe has a direct and profound influence on the political and military leadership. Major results include a reduced credible deterrent, limited options available to political leaders in pre-war crisis, restrictions and limited options available to military leaders fighting the battle. The restrictions may be of such a serious degree that military and political missions can no longer be accomplished successfully.

CIVIL DEFENSE IN CENTRAL EUROPE AND ITS  
EFFECTS ON POLITICAL AND MILITARY LEADERSHIP.

A thesis presented to the faculty of the U.S. Army  
Command and General Staff College in partial  
fulfillment of the requirement for the  
degree

MASTER OF MILITARY ART AND SCIENCE

by

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1981

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MASTER OF MILITARY ART AND SCIENCE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

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## ABSTRACT

CIVIL DEFENSE IN CENTRAL EUROPE AND ITS EFFECTS ON POLITICAL AND MILITARY LEADERSHIP, by Jurg Hostettler, Switzerland, 89 pages.

The study describes the Civil Defense status in Central Europe and compares it with an "ideal" Civil Defense model. All nations in Central Europe have organized a warning and alarm system; disaster relief and rescue organizations are operational in all countries. The protection of the population in terms of shelters and/or evacuation programs is, with the exception of Switzerland, weak or not existing.

The effects of modern warfare, to include chemical and nuclear weapons on the civil population are discussed. The study shows that an unprotected and poorly informed population is extremely vulnerable; by staying at home some protection can be provided by the "Central-European-type" buildings and by a prewar information program.

Considering the vulnerability of the population, the dynamics and the lethality of the modern battlefield, and the "city hugging" tactics of the threat forces, this study shows that the Civil Defense gap in Central Europe has a direct and profound influence on the political and military leadership. Major results include a reduced credible deterrent, limited options available to political leaders in prewar crisis, restrictions and limited options available to military leaders fighting the battle. The restrictions may be of such a serious degree that military and political missions can no longer be accomplished successfully.

"Civil Defense is part of the total defense of a country. According to the preamble of the constitution, one of the purposes of the union was 'to provide for the common defense.' It seems difficult to think of defense without making every effort toward protecting what is most important: the lives of the people."

Eugene P. Wigner  
Survival and the Bomb<sup>1</sup>

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## CHAPTER 1

### INTRODUCTION

Governmental statements about security policy, the density of population in Central Europe and the experiences from several wars of the 20th century show the need for protection of the populace and the need for an effective Civil Defense. Military literature, however, very often does not comment on Civil Defense. How serious is the populace threatened in a future war? What are the reactions of a poorly or not protected populace in a future war? Do these reactions limit the freedom of action of political and military leadership? What are the major influences?

#### Description of the problem and limitations

The importance of protecting its population in wartime is stated by most nations in Central Europe. The degree of realization of that protection, however, varies greatly between nations; that means, that a different degree of protection is available in wartime to the population of the various nations.

The goal of this study is to analyze, whether or not insufficient or nonexistent protection of the population could affect military and political leadership in wartime. If there is a relationship between a poorly protected population and freedom of action on the part of the national leadership, the study should identify the major influences and suggest recommendations.

The considerations are focused on a specific, heavily populated area in Europe and on non super power nations; a transfer of these considerations to the United States of America and/or the Soviet Union is questionable and is therefore not discussed in this study.

Only the protection of the population is discussed; Civil Defense in the broader sense, in particular measures to increase the survivability of economies and industries, measures to maintain productivity in wartime and measures to enhance a nation's post-war capabilities are not discussed in this study.

The study does not discuss the relationship between the financial capabilities of different nations and the potential for improvement of Civil Defense. These considerations would exceed the author's capabilities and the scope of this study. For the same reason, the causes for a poorly developed or nonexistent program for protection of the populace in the different countries considered herein are not discussed either.

#### Approach

The defined problem will be approached as follows:

- a. The actual Civil Defense in Central Europe is described.

The comparison of ideal and actual Civil Defense will furnish all elements necessary to determine the major gaps in actual Civil Defense (CHAPTER 3).

- b. The most dangerous course of action of an enemy attack in Central Europe is described and the effects of the attack on the unprotected population are analyzed. The threat analysis will furnish the elements to discuss how the population is threatened (CHAPTER 4).

- c. The effects of these gaps on the behavior of poorly protected population in wartime are analyzed. This analysis is the basic element

to discuss effects on military and political leadership in prewar and wartime. The discussion should show

- if freedom of action of political and military leadership is affected by poorly or unprotected population;
- what are the major effects (if the first answer is YES);

(CHAPTER 5).

### Fundamentals

Governmental statements. When analyzing the goals of the security policy of different nations, you will find that the protection of the population and the need of a Civil Defense organization is subject of some considerations and explanations of most nations in Central Europe.

With a couple of short citations I will attempt to summarize what is written in the constitutions and governmental publications of the Federal Republic of Germany, German Democratic Republic, Belgium, Austria and Switzerland about Civil Defense and the protection of the population.

Federal Republic of Germany. The security policy of each federal government must ensure the survival of the Federal Republic of Germany and its citizens. (Ziff 1.1.)<sup>2</sup>

The sense of defense consists in protecting the population and the nation from damage caused by an attack from the outside. The task can only be accomplished when not only the military, but also the Civil Defense is sufficiently prepared. (Ziff 1.3.3.)<sup>2</sup>

German Democratic Republic. The German Democratic Republic organizes the defense of the country as well as the peaceful life of the citizens.<sup>3</sup>

### Tasks of Civil Defense

1. In the German Democratic Republic, Civil Defense is an inseparable part of the national defense.

2. . . .

3. Civil Defense has the mission to organize the protection of the populace; of the national economy, of all essential installations and cultural possessions from the consequences of acts of military aggression, especially the effects of weapons of mass destruction. It must carry out measures which serve the continuation of governmental, economic and social life, as well as eliminate or lessen the damages and disturbances caused by acts of military aggression inflicted in the peaceful life of citizens and of the socialist society.<sup>4</sup>

Belgium. The goal of the (national) defense is to ensure at any time, at any conditions given and against any form of aggression the security and integrity of the territory and the life of the population.<sup>5</sup>

Austria. The Civil Defense has the mission to ensure the survival of the civil population by a timely warning and alarming, by constructional engineering and by training in self-protection. Civil Defense is a part of the total defense of the country.<sup>6</sup>

Switzerland. The security policy objectives of Switzerland are the preservation of peace in independence, the preservation of our freedom of action, the protection of the population and the defense of our territory.<sup>7,8</sup>

Density of Population. Central Europe has a very high density of population. The following overall figures can give only a rough idea:

<u>Country</u>	<u>State Department</u> <sup>9</sup>	<u>DMS</u> <sup>10</sup>
Netherlands	380 persons per km <sup>2</sup>	343 persons per km <sup>2</sup>
Belgium	314 persons per km <sup>2</sup>	326 persons per km <sup>2</sup>

<u>Country</u>	<u>State Department</u> <sup>9</sup>	<u>DMS</u> <sup>10</sup>
Federal Republic of Germany	246 persons per km <sup>2</sup>	250 persons per km <sup>2</sup>
German Democratic Republic	155 persons per km <sup>2</sup>	159 persons per km <sup>2</sup>
Switzerland	152 persons per km <sup>2</sup>	155 persons per km <sup>2</sup>
Austria	89 persons per km <sup>2</sup>	91 persons per km <sup>2</sup>
(USA)	NA	(23) persons per km <sup>2</sup>

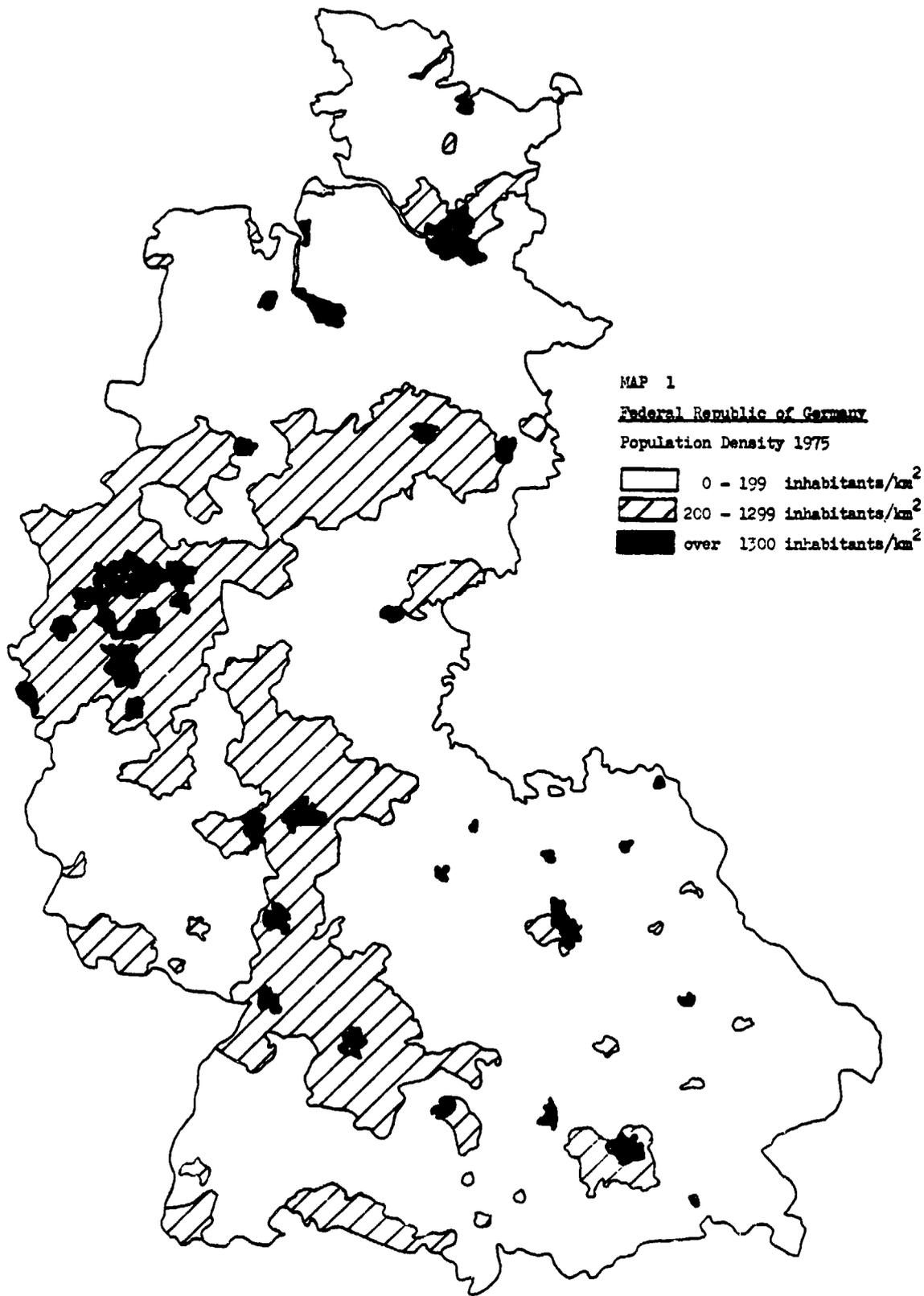
A more detailed view would show large areas with a much higher density than listed above. Map 1 and 2 show the distribution of the density of population in 1975 and 1985 for the Federal Republic of Germany. The western part of the territory is much heavier populated than the eastern portion.<sup>11</sup>

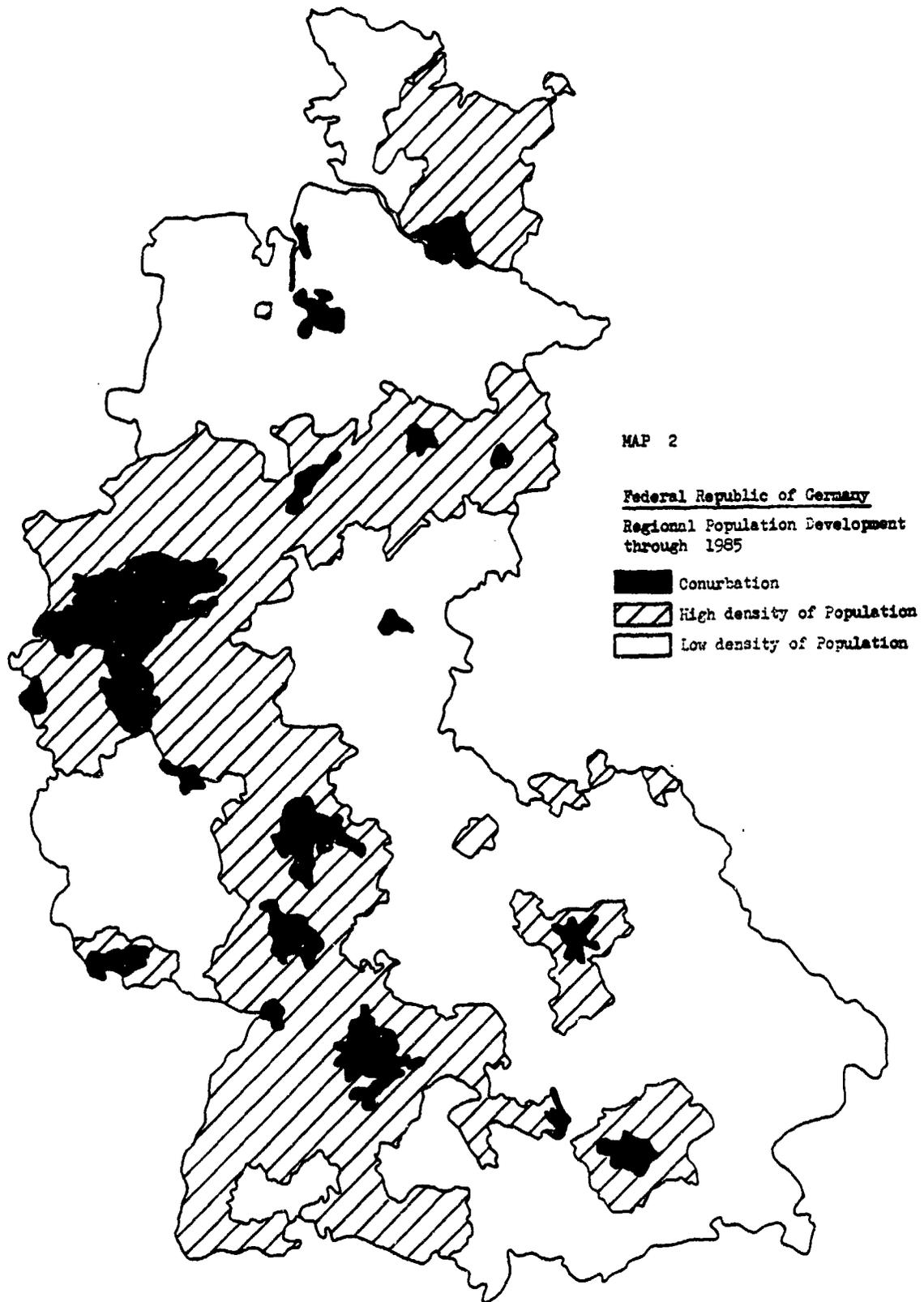
The Rhine - Ruhr complex stretches west to Aachen and south to Bonn and contains over 12.5 million people concentrated in 13,000 km<sup>2</sup>, or 961 persons per km<sup>2</sup>. The Rhine - Main complex includes Frankfurt, Darmstadt, Mainz, Mannheim and Karlsruhe; it contains over five million people in 7,000 km<sup>2</sup> or 714 persons per km<sup>2</sup>. The average distance between villages with a population of less than 3,000 people is only 3.5 km in the Federal Republic of Germany.<sup>12</sup>

These figures show that a war in Central Europe is fought in the midst of the population. Therefore, the population will be hit and suffer from modern warfare.

### Casualty Figures<sup>13</sup>

The ratio of killed soldiers and killed civilians constantly has shifted to the disadvantage of the civilians since World War I.





<u>Conflict</u>	<u>Deaths</u>	<u>Ratio Military : Civilians</u>
World War I, 1914-1918	Armies 10,000,000 Population 500,000	20 : 1
World War II, 1939-45	Armies 26,000,000 Population 24,000,000	1 : 1
Korean War, 1950-1953	Armies 100,000 Population 500,000	1 : 5
Vietnam War, 1961-1975	Armies 150,000 Population 3,000,000	1 : 20

In a future war, with an unprotected population and the use of nuclear weapons up to a certain amount, the ratio military:civilians is supposed to be up to 1 : 100. In a modern war, the damages supported by the population are much greater than damages and harms supported by the armies.

Civil Defense Discussed in Military Literature. Studying books about war and defense in Europe<sup>14,15,16</sup>, you find extensive writing on war scenarios, combat power ratio, efforts and gaps in defense and many suggestions to improve the actual situation; but you find little or nothing about population, its role and problems in a future war. It looks as if war happens in a vacuum, and as if population is not existing in Central Europe. It looks as if a poorly prepared Civil Defense does not affect military and political leadership in wartime.

## CHAPTER 1

### ENDNOTES

<sup>1</sup>Eugene P. Wigner, Survival and the Bomb (Bloomington: Indiana University Press, 1969), Chapter 1, page 4.

<sup>2</sup>Bundesminister des Innern, Weissbuch zur zivilen Verteidigung der Bundesrepublik Deutschland (Bonn: Bundesministerium fuer Inneres, 1972), par. 1.1. and 1.3.

<sup>3</sup>\_\_\_\_\_, Constitution of the German Democratic Republic (Translated by H. Flanz and Ralph P. Hummel, 1974), Art 7<sup>c</sup>.

<sup>4</sup>Law about the Civil Defense in the German Democratic Republic - and Civil Defense Law of 16 September 1970; translated by Gisela Helwig for Eastern Europe Report No 1686 dated 30 Mai 1979 (JPRS No 73572).

<sup>5</sup>\_\_\_\_\_, Problèmes de défense et stratégie - La défense interne de la Belgique (Publication de l'Ecole de Guerre, J-DP/2.21, août 1976), par. 3a.

<sup>6</sup>Ministerialrat Dr. Paul Aschenbrenner, Zivile Landesverteidigung in Oesterreich (Vienna - Austria: ZENTDOK Signatur 40345001150978), page 1.

<sup>7</sup>\_\_\_\_\_, General Defense, Report of the Federal Council to the Federal Assembly on the Security Policy of Switzerland (Berne-Switzerland: Zentralstelle fuer Gesamtverteidigung, August 1976), Chapter 2.

<sup>8</sup>\_\_\_\_\_, Sicherheitspolitik und Armee (Frauenfeld-Switzerland: Verlag Huber Frauenfeld, 1977), page 21.

<sup>9</sup>\_\_\_\_\_, Background notes of the Department of State (Washington D.C.: Office of Public Communication, Bureau of Public Affairs 1979 and 1980).

<sup>10</sup>\_\_\_\_\_, Deadline date on World Affairs (Greenwich, Conn 06830: DMS Inc, 1980)

<sup>11</sup>U.S. Department of the Army, Military Geographic Description of the Federal Republic of Germany (Washington, D.C.: Department of the Army, April 1978), Chapter 3.

<sup>12</sup>U.S. Department of the Army, Military Operations in Urbanized Terrain (MOUT), FM 90-10 (Washington, D.C.: Department of the Army, 15 August 1979), page 1-3.

<sup>13</sup> \_\_\_\_\_, Zahlen, Fakten, Daten (Berne-Switzerland: Bundesamt fuer Zivilschutz, 1980)

<sup>14</sup> Neville Brown, European Security 1972-1980 (London: Royal United Services Institute for Defence Studies, 1972).

<sup>15</sup> John C. Garnett, The Defence of Western Europe, Papers presented at the National Defence College, Latimer (London: Macmillan Press, 1974)

<sup>16</sup> Robert Close, Europe without defense? (New York: Pergamon Press, 1979).

## CHAPTER 2

### REVIEW OF LITERATURE

(for detailed references see selected bibliography)

U.S. publications on Civil Defense in books and periodicals of the last ten years are not focused on Europe. Most books and articles discuss problems like

- the benefits of U.S. Civil Defense in a general war and the importance of U.S. Civil Defense to improve the survivability of the nation;
- the analysis of Soviet Civil Defense;
- the importance of Soviet Civil Defense in the global strategic balance and in the Soviet war-winning, war-surviving and war-recovering strategy;
- psychological and economic impacts of various U.S. Civil Defense programs.

Leon Goure and John Collins are just two of many authors dealing with the problems listed above in their publications.

Eugene Wigner and Samuel Huntington discuss Civil Defense in broader aspects; even if European Civil Defense is not discussed in detail by these authors, many thoughts, ideas and facts are also valid for Europe: humanitarian aspects, cost-benefit relations, technical data and limitations of Civil Defense efforts are some of the problems addressed.

In military periodicals and books discussing future warfare in Europe, Civil Defense and the civil population is rarely mentioned. Sir John Hackett discusses some aspects of modern war in Central Europe on

Civil Defense and population. Paul Bracken is one of the few authors who has published thoughts and discusses various aspects of the civil population in a future war in Central Europe.

Books on Civil Defense published in Europe are rare. Wolfgang Schwarz, Zivilschutz im Ausland II is one of the books dealing with Civil Defense in West Europe in a detailed and broad sense and may be accepted as the most important publication on European Civil Defense. Published in 1977, the book does not have the data of the last years. Paul Aschenbrenner, Zivile Landesverteidigung in 27 Staaten is a book published in 1978 and explains Civil Defense of 27 nations from all over the world. Both books discuss legal aspects, programs, warning and alarm organizations, information of the population and other aspects. The Swiss Bundesamt fuer Zivilschutz publishes a brochure on Civil Defense Abroad every 2-3 years; this publication is updated but gives only a very rough summary for some ten nations and compares some general aspects like Civil Defense laws, shelter programs, organizations and duty obligations.

Derek Wood and R. Pengelley have discussed and compared some specific Civil Defense aspects of West Europe in a comprehensive and detailed way in International Defense Review 4 and 5/1977.

Most European nations have specific Civil Defense periodicals, which discuss specific and technical problems related to one country. Zivilverteidigung (Federal Republic of Germany), Zivilschutz (Austria) and Zivilschutz-Protection Civile (Switzerland) are some of these periodicals. The periodical Survival (London), Europäische Wehrkunde (Federal Republik of Germany) and NATO Review discuss Civil Defense matters in a broader aspect, related to political and military discussions.

In addition to these periodicals, a flood of articles and studies on Civil Defense is produced and published in newspapers and periodicals:

very specific questions, day-to-day problems and Civil Defense activities are discussed and reported. Most European countries have established a Civil Defense office somewhere in the Executive Branch of the government which includes a computerized documentation and information service.

The publications of the Joint Publications Research Service Arlington, Virginia may be of special interest to the U.S. reader and researcher. Important articles and essays of European newspapers and periodicals are translated and published in the West Europe Report and the Eastern Europe Report. The reports are also available on microfiche. Some 20-100 Civil Defense articles are published per year, with most of them reporting Civil Defense activities in Eastern Europe. The data provided is very current and specific; the European public feeling for Civil Defense improvements is reported. These reports are an indispensable source for research on European Civil Defense matters even if summaries and comparisons between national Civil Defense systems and status are rare.

## CHAPTER 3

### CIVIL DEFENSE

Civil Defense is an element of the overall defense of a nation and contributes to a credible deterrence. The comparison of a model of "ideal" Civil Defense with the actual situation in different countries of Central Europe shows that national warning and alarm systems are operational in all countries and all nations have some type of disaster relief and rescue organizations ready to react. However, little to no protection is available for the population in terms of shelters or evacuation programs with the exception of Switzerland.

#### Civil Defense and a Credible Deterrence

Can Civil Defense strengthen or weaken the credibility of deterrence and by doing so increase or decrease the likelihood of war? Interior Minister Baum of the Federal Republic of Germany thinks that an unprotected population means a diminution of deterrence.<sup>1</sup> The will to defend their own country can only be presented in a credible way if civil and military defense are equal partners.<sup>2</sup> The principle of deterrence is, in effect, to propose a credible defense; how could an enemy consider our armed forces credible, when the population is vulnerable to any strike.<sup>3</sup> Deterrence cannot be credible and therefore not effective if it is a foregone conclusion that the readiness to combat is lacking.<sup>4</sup> Readiness to combat however includes military and civil defense preparations, two inseparable parts of the overall defense of a country. Deterrence is only credible through the medium of military and civil defense efforts.<sup>5</sup>

On the other side one source mentions the argument that a well organized Civil Defense system might one day make it easier to decide upon war.<sup>4</sup> This argument against Civil Defense is valuable for nations only with an aggressive ideology. Western-type democracies and NATO will initially always be the reacting and not the acting part in a future war. That means, that the decision upon peace or war is made by the nations with an aggressive, war-winning and world-dominating ideology. The well developed Civil Defense of these nations may well facilitate the decision to start war in Central Europe. In addition, most Civil Defense publications of the Soviet Union and Eastern Europe stress the importance of Civil Defense in the socialist defense system.

#### Development of an "Ideal" Civil Defense Model

The survival of the population in wartime requires at least three major elements:

- A warning and alarm system
- A protection system for the population
- A disaster relief and rescue organization.

The warning and alarm system. Survival is difficult or not possible without a timely and comprehensible warning and alarm; simplicity is more important than detailed information. The organization must insure, that warnings and alarms can be released at three different levels: at national level, at state/district level and at municipality/local level in order to tailor the alarm to the threat. Few clear signals are required, produced by sirens and loudspeakers; warnings and alarms must be backed up by radio messages and information. At national level, the warning authority must be connected with the military headquarters, specially with Air Defense Headquarters. Connection with a nation-wide monitoring

system for radioactive fallout will insure that all information on radioactive contamination can be evaluated and used in time. The warning centers at national and state/district level should be installed in electromagnetic pulse (EMP) - hardened and protected sites in order to insure the warning in all circumstances.

The protection of the civil population. The ideal protection for the civil population is the shelter; however, shelters are expensive and complete protection cannot be given to the population. Minimum requirements for a modern, affordable shelter program are:

1. The population must be able to reach the shelters within minutes: to encounter the threat posed by modern airplanes;
2. The population must be able to stay in the shelters for several days up to two weeks: the intensity of residual radiation from fallout decreases to 0.001 in two weeks;
3. The population must be able to leave the shelters without exterior help through prepared ways: Buildings above the shelters may be destroyed and normal exits of the shelter can be blocked;
4. The shelters must provide protection against radioactive fallout, chemical warfare, conventional warfare and fires. In technical terms, a modern shelter must provide a transmission factor<sup>6</sup> against residual radiation of at least 0.001; must resist an overpressure of 1-3  $\text{atm}$ <sup>7</sup>; must be strong enough to stand the collapsing building above the shelter; must be air tight; must be equipped with aerosol and carbon filters for the fresh air;
5. Local and district authorities' instructions and messages can be received by a battery-powered transistor radio in the shelter;
6. The individual citizen must know the location of his shelter place, what he is supposed to bring with him and how to behave in the

shelter: a trained person is in charge of the shelter and some rules must be established and enforced;

7. Shelters should be multipurpose rooms which can be shifted from peacetime to wartime purposes within hours.

The Disaster Relief and Rescue Organization. In addition to the protection provided to the population, a special Civil Defense organization at municipality/local level is necessary. It is a disaster relief and rescue organization, ready to intervene in peacetime after natural and man-made catastrophes. Major elements of this Civil Defense organization for wartime are:

1. Command and control unit able to coordinate operations, to collect, process and disseminate intelligence and to establish communication among different Civil Defense units and with the population;
2. Fire fighting units, able to deal with fire, floods and oil spills;
3. Rescue units, able to locate and rescue people buried under collapsed buildings;
4. Medical units able to triage, treat and transport casualties;
5. NBC defense elements trained for chemical and radiological reconnaissance and decontamination of equipment and facilities;
6. Technical elements able to maintain the local public services (water, electricity and others) and to deal with specific local hazards.

The units of this Civil Defense organization must be mobile, must be able to survive warfare hazards and to operate in a hostile environment. They are therefore placed in shelters before and during the attack and are equipped with NBC defense items like protective masks, decontamination kits, gloves and atropine injectors. Following a decision at national level, they may or may not be armed.

At national or district level an additional element for disaster relief and rescue must be available; its mission is to support the local organization if damages and casualties exceed the amount, that can be handled by local authorities and local Civil Defense organizations.

Constraints. With the three elements described above, the situation of the civil population in wartime is favorable. Major constraints of this program are money, time and the will of the population to come to grips with Civil Defense. The building up of an efficient Civil Defense as described above demands a ratio of expenditure for military and civil defense between 15 : 1 and 25 : 1. These financial resources are often not available today in Central Europe; or to express it a different way: financial priorities are set in such a way, that little money is left for Civil Defense.

The building of an efficient Civil Defense organization isn't possible in 3 - 5 years as described in Hackett's Third World War;<sup>8</sup> the Swedish and Swiss Civil Defense programs have a duration of 20 to 30 years or even more. This demands a long-term thinking of all levels of government and civil population, a behavior which is difficult to obtain in a western-type democracy of today. The only thing, that could be improved in a relatively short period of time is the level of information and the Civil Defense awareness of the population.

Eventually, the building up of an efficient Civil Defense is not feasible without the will of the population to contribute money and time to the Civil Defense, to prepare for the worst case and to become familiar with the idea that an extremely devastating war is possible in Central Europe.

### Civil Defense in Central Europe

This paragraph summarizes the actual Civil Defense status in Central Europe. More and detailed information is listed in Appendix A for each nation.

Belgium. A warning and alarm system is operational and connected with the Belgium air surveillance system. Little is done for the protection of the population: no shelters and no evacuation programs are available. Some Civil Defense units for disaster relief and rescue missions are available at national and regional level; at local level the fire fighting units are the most important Civil Defense element. Preventive measures are weak.

Netherlands. The warning service at national level is operational and connected with the air defense service. The measures for the direct protection of the civil population are still very limited: the available shelters provide only limited protection against chemical warfare. The procurement and distribution of a protective mask for the entire populace is studied actually. Disaster relief and rescue elements are operational at local, district and national level. Government has developed long range plans to improve the protection of the population in the next 20 years.

Federal Republic of Germany. The warning and alarm system is developed and able to provide timely and tailored alarms to the civil population. In the actual situation little to no protection is available to the civil population. The standard German house with a cellar may provide some degree of protection. Little to no information and education was given to the population related to the Civil Defense matter. Relief and rescue units are operational at local (county) level, but no additional

units at a higher level are planned to support the county level, when the amount of damage and destruction exceeds the possibilities of local units. In the last few years, population and authorities got more and more concerned about the gaps in Civil Protection. Hessen CDU Chairman Dregger expressed it as follows:

An attack on the Federal Republic of Germany would be directed not just against the army but rather at the entire population. How can we morally justify having failed to do what is possible and will perhaps be necessary to protect the lives of our fellow citizens.<sup>9</sup>

German Democratic Republic. No data is available indicating strength and equipment of Civil Defense units and the number of shelter places for the population. Based on interviews, speeches of high ranking Civil Defense officials and a Civil Defense brochure issued by the government, we can assume that

. little to no shelters are available for the population, because this type of protection is never mentioned by officials.

. the population is better prepared mentally for a future war, because education, training and practical exercises and the day-to-day life, stress Civil Defense.

. The Civil Defense organization and its units are well organized and leaders are well trained for disaster relief and rescue missions, but also for missions to control and influence the civil population. Civil Defense concerns all people and the entire society; the government has the resources and the power to insure, that the entire socialist society and all citizens are concerned about Civil Defense.

Austria. The warning and alarm system is operational and backed up with radio and TV. The total protection of the population, the number of modern shelters available is still unsatisfactory. Most older houses provide good shielding against radioactive fallout, but protection against

chemicals is limited. Although the cooperation and readiness of the disaster relief units is tested on a day-to-day basis in accidents and natural disasters, these units will probably not be able to accomplish their missions in wartime without being strongly reinforced by well trained personnel and heavy materiel.

Switzerland. The warning and alarm service, a special branch of the Army is connected with different organs who provide information on air strikes, radioactive and chemical contaminations and flood hazards. Although the building up phase of the Swiss Civil Defense is by no means completed, up to 75% of the population can be protected by modern shelters providing protection against conventional warfare, chemicals and radioactive fallout. Civil Defense units and special units of the Army are ready and able to accomplish their mission as a disaster relief and rescue element.

#### Comparison Between "Ideal" and Actual Civil Defense in Central Europe

Warning and Alarm System. The warning and alarm of the population in the countries discussed is considered to be effective, timely and operational. All warning and alarm systems

- are connected with important headquarters of the Army.
- are able to monitor and process radioactive contaminations.
- are backed up by radio and television.
- have warning centers at national and lower levels.

The problem of EMP hardened alarm centers is known and studies are ongoing.

The Protection of the Population. Few modern shelters are available and the protection of the civil population is by no means satisfactory with the exception of Switzerland where 75% of the population

have shelters with filtered air. Most critical is the protection against modern chemical agents. Due to the type of buildings in Central Europe, a certain degree of protection against residual radiation and conventional hazards is available. Information and training in improving the existing facilities is another important gap.

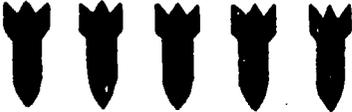
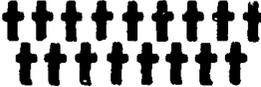
The government of the Netherlands is studying the problem of a protective mask for the entire population. In all other countries no protective items are planned for the population. All NATO countries in Central Europe have accepted the "stay put" policy; in Austria and Switzerland no population movements/evacuations are planned.

Civil Defense Organization. All countries discussed have established disaster relief and rescue organizations which are already operational in peacetime. Most countries also have such organizations at different levels in order to support local units with elements from district or national level. The organizations have all the elements needed in a modern war or in a natural or manmade disaster. The strength of these units however is very different from country to country; the Civil Defense organization of the Federal Republic of Germany has a planned strength of 600,000 men and women or 1% of the total population; the Netherland Civil Defense organization strength is 1,3% and the strength of the Swiss organization is 7,5% of the total population. Beside all differences, we can assume that the organizations will be able to deal with the effects of modern warfare and to save and rescue lives.

#### An Example and Some Reservations

The quality of Civil Defense measures has strongly influenced the number of casualties among the civil population in wartime. The example of Stuttgart and Pforzheim (Germany), shown in Table 1, explains

Table 1  
Effects of Civil Defense Measures on the Civil Populace  
(In World War II)

<b>STUTT GART</b> PREPARED CIVIL DEFENSE limited number of casualties		<b>PFORZHEIM</b> UNPREPARED CIVIL DEFENSE extremely high number of casualties
number of air strikes  <b>53</b>		number of air strikes  <b>1</b>
bombs  25,000 tons		bombs  1,600 tons
<b>500000</b> inhabitants		<b>80000</b> inhabitants
deaths: 4,000   0.8% of the total population		deaths: 17,600   22% of the total population
<b>0,16</b> deaths per 1 ton of bombs		<b>11</b> deaths per 1 ton of bombs

Source: Publication of the Swiss society for Civil Defense (Schweiz. Bund fuer Zivilschutz).

clearly the benefit of a well prepared Civil Defense. Central Europe today resembles, related to Civil Defense, more the Pforzheim than the Stuttgart model and there is no reason to believe that the experience from World War II would not be valid in a future modern war.

Due to a poorly developed Civil Defense, a nation may be confronted with a situation where the casualty numbers are no longer "acceptable" and where war resembles more and more a national suicide. The director of the German Academy for Civil Defense thinks "that all military defense loses its sense, as soon as the population, due to poor preparation, falls a victim to modern warfare and the execution of governmental power becomes impossible."<sup>10</sup>

General Robert Close doubts if leaders will be able to make soldiers get killed to defend a gigantic necropolis.<sup>11</sup> The armed forces could carry out their function only as long and as far as the lives of the populace they would have to fight for would be protected within the limits of the possible.<sup>12</sup> West Europe with its unprotected population could develop into a national cemetery. The Belgium Civil Defense Chief doubts the moral ability of the soldiers ". . . to defend a national cemetery."<sup>13</sup>

## CHAPTER 3

### ENDNOTES

<sup>1</sup>Michael Naumann, \_\_\_\_\_ \* (No Room in the Shelter), Die Zeit (Hamburg) 16 May 1980; translated and cited in West Europe Report No 1590 dated 17 June 1980 (JPRS No 75895).

<sup>2</sup>Gerd Herbst, "Die zivile Verteidigung in der BRD," BSV- Informationsdienst Nr 1 (Köln 41), (October 1969).

<sup>3</sup>General Robert Close, Interview published in La libre Belgique in French (Brussels) 20 November 1970; translated and cited in West Europe Report No 1533 dated 29 Jan 1980 (JPRS No 75021).

<sup>4</sup>Carl-Friedrich von Weizaecker, \_\_\_\_\_ \* (If War Should Break Out After All), Die Zeit (Hamburg) 16 May 1980; translated and cited in West Europe Report No 1590 dated 17 June 1980 (JPRS No 75895).

<sup>5</sup>The Federal Minister of Defense, White Paper 1979, The Security of the Federal Republic of Germany and the Development of the Federal Armed Forces (Bonn: Federal Ministry of Defense, 1979), par. 5.

<sup>6</sup>The transmission factor characterizes the quality of protection against nuclear radiation.

Transmission factor =  $\frac{\text{dose rate (Rad/h) or dose (Rad) in protected area}}{\text{dose rate (Rad/h) or dose (Rad) in unprotected area}}$   
If the measurement in a shelter indicates a dose rate of 1 Rad/h and the measurement in the open nearby the shelter indicates a dose rate of 1000 Rad/h, the transmission factor is 1/1000 (=0.001).

<sup>7</sup>1 atu = overpressure of 1 kp/cm<sup>2</sup> is equivalent to 14,3 psi (pounds per square inch) overpressure.

<sup>8</sup>General Sir John Hackett, The Third World War (New York: Berkley Books, 1980), Appendix 4, The Home Front.

<sup>9</sup>\_\_\_\_\_, \_\_\_\_\_ \* (Dregger Calls for Overall Defense Concept), Frankfurter Allgemeine 9 Aug 1979; translated and cited in West Europe Report No 1466 dated 7 September 1979 (JPRS No 74148).

<sup>10</sup>Ulrich Eichstaedt, "Moderne Strategie und zivile Verteidigung," Zivilverteidigung 3/1979 (Bonn).

<sup>11</sup>General Robert Close, Interview published in La libre Belgique in French (Brussels) 20 November 1979; translated and cited in West Europe Report No 1533 dated 29 Jan 1980 (JPRS No 75021).

<sup>12</sup>Wolfram von Raven, \_\_\_\_\_ \* (The Hole in the Security Umbrella),  
Die Welt (Bonn) 6 March 1980; translated and cited in West Europe Report  
No 1554 dated 17 March 1980 (JPRS No 75321).

<sup>13</sup>J.N., \_\_\_\_\_ \* (Civil Defense, Do You Know Anything About It?),  
Interview with the Belgium Civil Defense Chief published in La libre  
Belgique in French (Brussels) 19 November 1979; translated and cited in  
West Europe Report No 1533 dated 29 Jan 1980, page 23 (JPRS No 75021).

\*The West Europe Reports and Eastern Europe Reports of the Joint  
Publications Research Service (JPRS) do not mention the original title;  
instead of translating the English headline back into German or French,  
I decided to mark the missing original title with \_\_\_\_\_.

## CHAPTER 4

### THE THREAT TO THE CIVIL POPULACE IN A FUTURE WAR

If the Soviet Union\* decides to attack Western Europe, many objectives and purposes and different scenarios of the attack are conceivable. No matter how an attack is planned down to the last detail, the following elements will probably always be a part of the scenario. The Soviet Union will attempt

- to attack Western Europe by surprise
- to attack simultaneously at different places on a large front and with units that are well equipped and trained to perform offensive operations
- to achieve and maintain penetration and momentum by concentrating maneuver and fire elements on the ground and by coordinating these operations with the Air Force
- to maintain speed by concentrating on the East-West high speed avenues, bypassing restricting terrain and minor enemy units
- to create favorable conditions for the breakthrough and the deep penetration by using chemical agents, electronic warfare and even isolated nuclear attacks
- to delay or prevent political and military decisions, movement of military units and worldwide information with air assault and sabotage operations deep into the sector of attack, concentrating on the political and military leadership

\*Everytime the Soviet Union is mentioned in this threat discussion, the Warsaw Pact nations are included.

- to accelerate the collapse of law and order, to disrupt the civilian supply system, to destroy the will of the country to resist by diplomatic, psychological and military actions and to exploit the effects of such a collapse

- to complete all military operations as fast as possible, to create a new and favorable situation and then suggest negotiations.

The following paragraphs discuss some elements of the attack and their effect on the populace.

### Major Elements of Offensive Operations

Prewar time and surprise. Surprise is one of the seven principles of Soviet tactical doctrine. Surprise, in a strategic sense, means the coordination of military, political and psychological operations to achieve surprise. Surprise, from the Soviet viewpoint, means to become aware too late to react effectively.<sup>1</sup>

In the last 25 years, the Soviet Union has presented itself as a power and government, that is able to create strategic surprise. Hungary in 1958, Czechoslovakia in 1968, and Afghanistan in 1979 are proof that the Soviet Union is capable of strategic surprise. Even the 1973 Yom Kippur War may be, in its origin, an example of Soviet planning.

Military experts' description of future war in Europe, which are accessible to the public, emphasize the importance of surprise. Robert Close discusses an attack with limited objectives and limited armed forces under conditions of absolute surprise as a feasible course of action in Central Europe.<sup>2</sup> Hackett's scenario of the Soviet attack begins with fully deployed forces on both sides, therefore with little strategic surprise, but with long range objectives.<sup>3</sup> However, both authors found that a surprise attack in July or August on a Sunday morning at dawn would have the optimum effect.

The manner in which the attack starts may vary from conventional attacks with Tank and Motorized Rifle Divisions to strikes with the bulk of the helicopters deep into West Germany.

Whatever the details of the Soviet surprise, the attack will hit NATO more or less prepared, and the degree of surprise may well decide the success or failure of the entire military operation. Armies are trained to deal with surprise and to take all necessary measures to regain freedom of action. Civil authorities and populations are much more sensitive to surprise and require much more time and energy to respond.

For our purposes, we will attempt to describe the worst case: that the Soviet Union will be able to create strategic surprise, that there will be little or no military, political, economic, or social warning.

Assuming that this worst case is realistic up to a certain unknown extent, what conclusions may be derived?

1. There is little or no time to make up leeway
2. Only "last-minute-information" may be provided to the population
3. In a situation of very high tension (hours before the attack), the ability to provide information may be limited by political, psychological or technical reasons
4. The behavior of the "informed" population is not foreseeable and there may be loss of confidence in the government and armed forces.

If we assume that the "last-minute-information" could be provided, essential questions are:

- what is the content of the information?
- is it still possible to tell the truth?
- can government afford to tell half-truths?

- are facilities to disseminate information available and working?

- can the attacker benefit from the information?

- what is the reaction of the population: calm, panic, flight?

Maintain Speed and Penetrate Deep. Maintenance of speed and penetration deep into the enemy's rear area are the most important principles of Soviet military doctrine. In order to practice these principles, we assume that the Soviet Union will

- rely heavily on high-speed avenues of approach in a East-West or Northeast-Southwest direction

- bypass hindering terrain such as large wooded or built-up areas

- bypass enemy positions and units of minor importance

- take all measures allowed to achieve the objectives given by higher headquarters and to link up with air assault units in a timely manner.

However, all these east-west avenues lead into principle built-up areas with extremely high population densities. Only 100 kilometers west of the international border, one feasible avenue of approach ends in the Frankfurt - Main area, with a population density of more than 700 people per square km (see Chapter 1).

These east-west avenues will also be the main routes of the refugee movement. Given the high speed of Soviet leading divisions, a mixing of refugees and military units would be unavoidable. Some of the consequences of this development must be described:

1. The attacker has to clear his axis of attack by whatever method seems to be successful: with machinegun fire from aircraft and armored vehicles, with armored engineer equipment sweeping away derelict civil

vehicles and wounded or killed civilians without significant loss of speed, as described in detail in Hackett's scenario.<sup>4</sup>

2. For the defender, who needs to stop the enemy attack with anti-tank fire, artillery fire, dynamic and static obstacles, and close air support, the mixture of refugees and threat units creates significant problems. To accomplish his mission, the defender in many cases may be forced to use his firepower against this moving mixture of threat units and civilians. The refugees will suffer heavy losses from enemy and friendly fire until they understand the dynamics and speed of modern battles and avoid high-speed avenues of approach.

The Importance of Built Up Areas. NATO defense doctrine and weapon technology is focused on open terrain combat. Threat forces are expected to bypass urban areas in order to maintain speed. However, Soviet publications recognize that cities are the economic and political centers of a country and will have great influence in any future war. There is no doubt, that friendly and threat forces will use urban areas for different reasons. The use of the West German road net by the Warsaw Pact forces will require that Pact forces be located in and/or near urban areas. NATO forces will need the facilities and public services available in urban areas.

Using West German urban areas with their poorly protected population, the threat forces would feel relatively safe from NATO conventional and nuclear fire: urban areas and population will provide a shield for the Warsaw Pact forces. While NATO forces must attempt to prevent or reduce collateral damage,<sup>5</sup> the Soviets will be able to capitalize upon the threat of massive collateral damage. A Soviet nuclear artillery shell that "accidentally" misses a military target and happens to explode in a

West German city or suburb would demonstrate to NATO and the political leaders the consequences of warfare in urban areas in the middle of an unprotected population.<sup>6</sup>

Should NATO decide to fire on its own cities and its own (poorly protected) population, it is questionable for how long the political leaders of West Germany, Belgium and the Netherlands would and could accept this type of warfare and would prefer to find a political solution. This unpleasant situation is aggravated by the unprotected population and the population once more limits the freedom of action of military and political leaders.

A population in underground shelters, prepared to survive war in urban areas would:

- suffer only a fraction of the casualties of an unprotected population in this type of warfare;
- reduce the shielding effect the unprotected population is providing to the enemy;
- strengthen the determination of their own government to resist and reduce its vulnerability to blackmail and the pressure to surrender.

#### Chemical Agents

On the modern battlefield, weapons are extremely powerful. High explosive rounds from artillery, mortars, tank guns; high explosive and napalm fire delivered by aircraft; the fire of automatic and antitank weapons; mines and ammunition specially designed against personnel and soft material targets (cluster weapons) provide an example of conventional destructive power on the modern battlefield without precedence.

This paragraph endeavors to explain the lethality of today's battlefield.

Much emphasis is placed on nuclear warfare as an example of a mass-casualty-producing weapon on the modern battlefield. But chemical agents are extremely effective when employed against unprotected and/or poorly trained persons and little discussed.

Assumptions Related to the tactical employment of chemical agents.

At the beginning of the attack the employment of nonpersistent nerve and blood agents will show excellent results on unmasked or poorly trained units. As long as the surprise can be maintained by the attacker, these agents will cause heavy losses. In the depth of the axis of attack, the employment of persistent nerve and blister agents on airfields, division support areas, air defense artillery positions will be effective against personnel and slow down important time-sensitive operations such as the rearming and refueling of aircraft. The direct employment of chemical agents against the civil population will be the exception rather than the normal. The employment of chemical agents in summer time provides the best advantages to the attacker. Soviet training with chemical agents is very realistic and casualties caused by poor reaction and handling of the equipment during training periods are accepted by the Soviets. We must therefore assume, that the Soviet Army is willing to accept some risks in using chemical agents in the attack. Finally keep in mind, that a chemical attack isn't an isolated event. Once the approval to use chemical agents is given, one-sixth to one-third of all artillery and multiple rocket launcher fires may be chemical fires.

Mode of Action of chemical agents. The human body accumulates chemical agents by inhalation and/or absorption through skin and eyes. Amounts in the range of milligrams may cause combat ineffectiveness or death.

Nerve and blood agents in gaseous form or as a fine aerosol are inhaled and show effects within seconds or minutes, depending on the dose accumulated. Blister agents, in liquid or gaseous form show delayed effects, which appear within several hours. Blister agents seldom cause death but may require extensive medical care. Nerve agents in liquid form penetrate the skin within minutes and without warning of pain. The effects show up within five to 30 minutes, depending on the dose accumulated.

Because modern chemical agents are colorless, odorless and tasteless, they are very often detected only by their effect on the contaminated body, that is too late. Special instruments could provide early warning. Related to their weight animals are, with few exceptions, as sensitive to chemical agents as the human being. The vegetation may absorb liquid chemical agents, preserve them for weeks and endanger animals and human beings who are not aware of the threat for extended periods of time. These facts create additional problems for farmers who survive the primary attack.

Clouds of gaseous chemical agents or fine aerosol may be preserved in effective concentration for several hours and can be carried downwind for some ten kilometers, following local wind direction and topography. That means, that chemical agents are effective in the target area and in a more or less unknown, but much larger downwind area. Measures to provide fast information and a quick running alarm are essential to limit downwind effects of chemical agents. Close coordination and established communication between the fighting units and civil authorities or civil defense authorities can provide information and alarm for threatened areas. An example of the downwind hazards are discussed later in this chapter.

Protection. The most important and most effective measures to survive a chemical attack are preventive protection measures; that means protection of the respiratory tract, eyes and skin before the chemical attack occurs. The protection of the respiratory tract is provided by cleared protective masks or airtight shelters equipped with filters and airlocks. The "filter" must be a combination of an aerosol filter (paper and/or cotton) and activated carbon. The protection of the eyes is provided normally by the protection of the respiratory tract. Children under the age of six represent a special problem because a protective mask can't provide the required protection to a child. The skin is protected by special clothing, boots and gloves and by airtight shelters with filters and airlocks. The normal clothing and uniform may provide limited protection for a short time; however if the attack is initiated in the heat of August, soldiers and civilians will be very vulnerable to chemical agents due to their exposed skin. Once the contamination of a human being is a fact, and specific symptoms appear, specific medicine must be administered as soon as possible: atropine and oximes (antidote) against nerve agents, Amylnitrite against Cyanides. Artificial respiration may be required necessitating special equipment in a contaminated area. In addition, the access of chemical agents to the body must be stopped; contaminated skin and clothing must be decontaminated with special chemicals or changed. Depending on the degree of contamination, a person may need additional medical help and treatment for several days in order to survive.

Example<sup>7</sup>. Using unclassified data, the following depicts the employment of nonpersistent nerve agents on a military target and the downwind hazard.

Data: Agent GB (Sarin): Median lethal dosage,  $Lct_{50} = 70 \text{ mg/m}^3 \cdot \text{min}^8$ ;  $LD_{50} = 1-2 \text{ mg/man}$  (skin effects)<sup>9</sup>. Target in mild activity, size not essential for our purposes. Temperature gradient neutral; inversion in specific areas. Local winds with 10 km/h in direction of enemy attack. Concentration of GB in the target area within 30 seconds after the beginning of the chemical attack:  $300 \text{ mg/m}^3$  (first two meters above ground).

Effects in the target area<sup>10</sup>. Unprotected troops who fail to mask within few seconds after arrival of the first chemical rounds (no specific signs can be observed), will accumulate a semilethal dose within 20 to 30 seconds and suffer heavy losses. Units wearing the protective mask and clothing at the beginning of the attack will suffer few or no losses and maintain combat effectiveness. Civilians in or near the target area, without protection and training have no chance to survive. Within minutes after the chemical fire, threat units, initially masked, will attack the target area.

Downwind hazard. Moving in the direction of the prevailing wind and following the valleys, the deadly and invisible cloud of gaseous GB (Sarin) moves out of the target area; nobody knows its precise direction and location. With an assumed temperature gradient (neutral), the moving cloud will remain in a dangerous concentration for about two hours and cover in this time a distance up to 20 kilometers; then be diluted to harmless concentrations. In not unusual weather conditions the cloud may persist in harmful concentrations up to ten hours and travel up to 100 kilometers in this time. Unwarned troops and unprotected populace in the downwind area will be contaminated. Depending on the concentration

of the GB cloud, the exposure time and the physical activity (breathing rate), the effects will be more or less harmful. With a GB concentration of  $5 \text{ mg/m}^3$  air and an exposure time of 14 minutes, an  $\text{Lct}_{50}$  of  $70 \text{ mg. min/m}^3$  will result ( $5 \text{ mg/m}^3 \times 14 \text{ min} = 70 \text{ mg. min/m}^3 = \text{median lethal dosage for Sarin (GB)}$ ); this means, that 50% of the persons exposed for 14 minutes to this low concentration of GB will die, if no immediate medical help is available. In wooded areas, exposure time will normally be longer than in open terrain, because the wind speed is reduced and consequently the toxic cloud will move slower than in open terrain.<sup>11</sup>

Appendix B shows the dimensions of downwind areas in the sector of a Mechanized Division in the defense.

Summary. This short description of chemical warfare shows that:

- The Soviets are willing to accept risks in chemical warfare
- Soviet units are well prepared and equipped for chemical warfare
- Modern chemical agents are extremely effective, cause very specific diseases and show a long term and a long range effectiveness
- Special protective equipment is indispensable for surviving a chemical attack
- Special medical treatment and perfectly trained reactions are a must in dealing with chemical agents
- Special organizational measures to disseminate information and spread the alarm can limit the threat in the downwind area.

Conclusions relating to the civil population.

1. Buildings in Central Europe, most of which are built of stone and concrete, will provide some protection against persistent and non-persistent chemical agents; as soon as doors and windows are destroyed, little or no protection will be available.

2. Most buildings in Central Europe have cellars below the surface. If well prepared (openings closed and airtightened as much as possible), cellars can provide limited protection for the most critical hours.

3. Civilians who try to flee will be exposed to the effects of chemical agents. Very often the direction of flight will be identical to the direction of the moving cloud: both follow valleys. An extremely long exposure time is the result of this behavior.

4. Contaminated domestic animals and vegetation will create additional problems for farmers, veterinarians and local authorities.

5. Peacetime health service (hospitals and physicians) will not be prepared in terms of knowledge and equipment to receive a great number of people contaminated by nerve, blister and blood agents. Medical units of the armed forces will probably be unavailable for essential help in this critical phase of the defense.

6. Chemical warfare in a broad sense also has a psychological aspect. The threat is invisible and silent. Even as a liquid, the amounts necessary for deadly or serious effects are often not detectable with the eyes. Shortness of breath, fear of suffocation, reduction of visual power and uncontrollable convulsions are symptoms which intensify the psychological aspect and may initiate reactions which are difficult to control.

### Nuclear Weapons

General Considerations. The employment of nuclear weapons in the first 24 to 48 hours of an attack is at least questionable. Once the employment of nuclear weapons is authorized, we assume that threat and friendly forces will at least try to avoid heavy casualties among the civil population.

However, threat forces will probably not hesitate to employ nuclear weapons in urban areas if such a strike may result in operational advantage. Friendly troops have to consider collateral damage preclusion criteria (casualties among civil population or damage to their facilities). Civil-military operations personnel (G5) must provide information on population centers, refugee centers, refugee movements and psychological impacts of nuclear strikes on civil population.<sup>12</sup>

All these constraints and precautions will not exclude casualties among the civil population and damage to their facilities. To reduce these casualties will be extremely difficult, since in order to maintain the momentum of surprise no warning can be expected.

Protection against conventional warfare (bombing, shelling) will also provide reasonable protection against thermal radiation, blast and initial nuclear radiation. In all cases, direct-hit-protection is not feasible. The long range residual effects of a nuclear strike must be discussed in detail, because a timely warning and adequate reactions will save hundreds of thousands of lives.

Description of local radioactive fallout. Radioactive fallout from nuclear surface bursts is visible and falls back to the earth within 24 hours after the detonation. It covers extended areas (some thousand square kilometers) and emits Gamma and Beta radiation. The intensity of the radiation decreases with increasing distance from the point of detonation and with time. If we measure, at a specific location in the contaminated area, an intensity of 100 Rad/h, one hour after the detonation, we will measure<sup>13</sup>

10 Rad/h: 7 hours after detonation

1 Rad/h: 2 days after detonation

0.1 Rad/h: 14 days after detonation

0.01 Rad/h: 3 months after detonation

Exposure of living organisms (human or animal) to the Gamma radiation will cause variable damage, depending on the dose (amount of radiation) accumulated. Beta and Alpha radiation will not cause critical damage in the first days and weeks after the detonation.

<u>Dose</u>	<u>Early Symptoms</u>	<u>Fatalities</u> <sup>14</sup>
0-70	few and light	None
150	50%; medium	None
450	100%; heavy; units ineffective	50% within 1 month
650	100%; heavy; units ineffective	100% within 1 month

Local radioactive fallout has little or no water solubility and mechanical methods must be used for decontamination of equipment, clothing, streets and facilities. Inhalation of radioactive fallout is not a major threat and can be prevented with simple methods (dust mask).

Several weeks after the detonation, the worldwide radioactive fallout falls back to the earth. Its characteristics and behavior are different from the local radioactive fallout described above. The effects will threaten an area much larger than Central Europe and are therefore not discussed in this paragraph.

Example. To get an idea of the extent of an area threatened by local radioactive fallout, assume a nuclear surface burst of 50 KT and a wind speed of 30 km/h for the DELTA-type explosions.

Zones I and II of the fallout prediction are each 41 kms long. Zone I means that unprotected people will accumulate more than 150 Rad within the first four hours. In our example, Zone I covers an area of about 900 km<sup>2</sup>. Zone II means that unprotected people will accumulate

less than 150 Rad within the first four hours. In our example, Zone II covers an area of about 1700 km<sup>2</sup>.

Keep in mind that the above is a more or less accurate prediction; the location of the contaminated area and the intensity at a specific point may be identified only with special instruments.

Description of the area threatened by radioactive fallout. The location and shape of the threatened area are given by the wind data provided periodically by higher military headquarters. The number of KT's and the type of weapon are other important factors.

Zone I of our example covers 900 km<sup>2</sup> or the main battle area of a US division defending with three brigades abreast. In addition to the 7 - 10,000 soldiers in this area prepared to accomplish their mission and trained to deal with a radioactive contamination, approximately 150,000 civilians are living in the same area. They are not prepared to survive this kind of warfare and may accumulate heavy doses of Gamma radiation. Appendix C shows Zone I of the discussed surface burst, covering the main battle area of a Mechanized Division in defensive positions.

Buildings in this area, normally with cellars can provide excellent protection. A transmission factor<sup>14</sup> of 0.01 or even better is not unusual. A transmission factor of 0.01 reduces the intensity of the Gamma radiation from 100 Rad/h to 1 Rad/h and therefore provides enough protection to survive without significant injury. However, civilians should be prepared to stay in the protected area for several days (2-7 days).

Farmers in this area require special information on survival measures for personnel and animals in a contaminated area.

#### Conclusions.

1. Attempts to escape from radioactive fallout by flight will seldom be successful. When caught by the radioactive fallout in the open

and without protection, reasonable reactions for poorly trained persons will be difficult and adequate protection will not be available, even if minutes are not decisive for survival.

2. Persons in buildings, whenever possible in cellars, benefit from a reasonable protection against radioactive fallout and should stay in the protected area for several days. With some simple measures the factor of protection can be increased significantly.

3. Farmers will need special information and instruction to protect animals and feed from contamination and radiation. These measures are rather complex and need some time for realization.

4. The medical treatment of radiation sickness is complex and in a situation with mass casualties it will be reduced to a strict minimum. No instruments are available to measure the amount of radiation accumulated in a body. As in chemical warfare, the public health service is not prepared to deal with this type of casualty with exception of some hospitals located close to nuclear power plants.

5. Radioactive fallout will create an important psychological problem. The fear, ignorance and emotions that have appeared and appear still in discussions on nuclear power plants will be worsened and will initiate behaviors and reactions not easily controlled by military and civil authorities.

6. Survival in the target area of a chemical or nuclear attack is very difficult and represents the exception rather than the normal. However, with sufficient information and preparation, survival in a fallout area or in the downwind area is feasible and not prohibitively expensive.

### Special Operations

The use of biological weapons and toxins with lethal or incapacitating effects would strike the civil population in a way that exceeds all imagination and protective measures. As a matter of fact, the use of biological weapons would recreate the situation of the medieval plague epidemics. Threat and friendly forces, political and Civil Defense authorities would face a situation extremely difficult to overcome. We assume that the "NO USE POLICY" of the United States for biological weapons and toxins has influenced the Threat forces to not use these weapons. Available information indicates that this assumption is reasonable.

### The Secondary Effects of Military Attack

The attacker will be interested in all measures to create rumors, disorder, panic and chaos during the military attack. Once the military attack has secured the objectives, all measures must be taken to return the occupied area to normal life. This paragraph describes some of the elements, that will contribute to rumors, disorder, chaos and additional losses among the civil population.

Collapse of information. Television, radio and newspapers provide information and instruction in peacetime and wartime. The control of TV and radio stations, of newspapers and editorial staffs by special threat units will be one of the most important operations. Techniques are available today to broadcast voices of well known individuals via radio and TV thus spreading false messages and information. The purpose of all these operations will be to:

- Create rumors, unrest, political demonstrations, panic and disorder by providing false information and half-truths.

- Hamper military operations and decisions of political authorities by recommending unsuitable reactions and behavior to the population.
- Reduce confidence in government and increase insecurity by exploiting errors and omissions committed by the actual government.
- Announce the "new revolutionary government" and new political authorities.

The destruction of minor TV and radio stations and the elimination of minor newspapers will support the control of information. Everything must be prepared to regain control over the civil population as soon as military operations are completed.

Breakdown of public health services. Public hospitals and physicians will have to deal with a completely new situation within a few hours. This will be characterized by the following major facts:

- The appearance of mass casualties and the problem of triage by physicians with little or no experience in this subject.
- An uncommon spectrum of injuries such as wounds from bullets and fragments; burns from napalm, conventional fires and blister agents; contamination by nerve or blood agents; radiation sickness from initial and residual radiation.
- The need to apply war surgery methods instead of peacetime surgery and treatment ideals.
- The mobilization of reservists, which will create an added shortage of physicians during a critical situation.
- The limited capacity of hospitals and shortage of operating tables and special items such as blood, blood plasma, blood substitutes, atropine and nerve agent antidote.

These problems will reduce the capabilities of the public health service and increase the gap between what should be done and what can be done for a certain period of time. Additional fatalities will be the result and there will probably be little understanding among those who need the medical treatment.

Collapse of energy and food supplies. Modern civilization is highly dependent upon energy sources in the form of electricity, gasoline and oil. If the attack takes place in summertime, the collapse of energy and food supplies may be less critical than in wintertime. Great differences exist between urban and large built-up areas. Electricity may be short because nuclear power plants may be turned off to increase safety; high voltage lines may be interrupted due to extensive use of wire guided antitank missiles; or sabotage in transformer stations may break down the supply of electricity. Modern kitchens, televisions, many radios, water supply, large shopping centers and railway traffic are only a few examples of daily life, that will not run without electricity.

The situation for food supply is very complex and difficult to describe. Its organization will probably differ from country to country. Food prepared in centralized, large "plants" like milk, bread and meat will be short because large dairies, bakeries and slaughter houses depend on electricity and transportation. Large shopping centers will be sold out within 1-2 days if they are not resupplied daily. Furthermore, hoarding of essential items can be expected. Even if disruption of the food and power supply is not complete, it will probably be a source for rumors, hoarding, plundering and rioting.

Psychological effects. There are many elements that determine the psychological situation of the civil population in a military attack.

Some of these elements are listed and if necessary, explained below:

- The fear of Soviet (Russian) soldiers and soldiery; falling under a Communist government; losing freedom, safety, prosperity and wealth; being killed or wounded in military operations magnified by rumors of the effects of modern weapons.

- The uncertainty caused by rumors that friendly forces have moved back and threat forces continue to move westward.

- The feeling of being without protection, help and support and of being abandoned by one's own government.

- The shock caused by a surprise military attack.

- The collapse of law and order.

- Observations about the ongoing battle on the ground and in the air and the confrontation with death, destruction and power.

These and many other facts will affect the behavior and the reactions of the population and represent an unknown element confronting military and political authorities.

Special casualty-producing factors. Although the civil population isn't the primary objective of a military attack, additional heavy losses must be expected for several reasons:

1. The use of built-up areas by friendly and threat units for defense purposes and/or installation of service areas, depots and command posts will result in an additional mixture of civil population and military forces.

2. Incidental civilian damage and casualties will be caused by the interaction of threat and friendly weapon systems.

- Air Defense and Air-to-Air weapons will produce aircraft crashes and the dispersion of HE, chemical, nuclear and fire weapons throughout heavily populated areas.

- Jamming will cause flying weapon systems to miss their primary targets and crash or detonate somewhere else.

3. Exhaustion, limited visibility, incomplete or false intelligence, and technical deficiencies in arms, equipment and ammunition will cause errors on the part of pilots, artillery, tank gunners and riflemen. Modern weapons are extremely powerful and these errors will cause heavy destruction to non-military areas and facilities.

#### Summary of the Consequences of Modern Warfare on an Unprotected Populace

For our purposes, unprotected population may be defined as a populace without proper shelter or equipment and lacking adequate knowledge to protect itself. Unlike the armed forces, there exists for the population no front and no distinct area called the battlefield. Military operations are so dynamic, the main effort can shift so rapidly from one sector to another, and modern weapons are so powerful that there is no safe place for an unprotected population.

The situation of that portion of the population which stays at home is characterized by:

- the protection provided by buildings and cellars against direct effects of weapons and war up to a certain amount.

- the protection provided by buildings and cellars against radiation from fallout and a very limited protection against downwind hazards of chemical attacks

- benefits from continuing to live in a known community and environment

- stress of psychological pressure (communist government, lack of physical activity)

- ability to exploit local resources for food and power supply and health services because of knowledge of the local resources.

The situation of the population which tries to flee westward is very tenuous and may be characterized by the following points:

- full exposure to all effects of modern warfare, both direct and indirect weapon effects
- a strong probability of mixture with armed forces
- lack of protection against radioactive fallout and downwind hazards
- life in an unknown, even hostile community and environment
- somewhat less psychological pressure because of physical activity
- lack of information of local food and power supply, and health services.

A portion of the population will be evacuated out of specific areas by armed forces (example: to use built-up areas for defense positions). Characteristics:

- armed forces will not be able to replace protection previously provided by buildings and cellars
- there will be little protection against indirect effects of weapons (downwind hazards)
- the friendly commander will be faced with the dilemma of exposing the civil population to the effects of modern weapons.

Specific groups of the population need special care and will be threatened in a specific way:

- pregnant women and children under 15 years old, the future generation, will be especially endangered by radioactive fallout (Gamma radiation)
- children under 6 years old will be threatened by chemical agents, because of the need for a special protective mask

- farmers need special information and training to protect animals and feed against radioactive fallout and contamination by chemical agents.

Thus built up areas will not be excluded from warfare by friendly or threat forces. Additionally Soviet tactics of hugging cities and urban areas will favor threat forces by providing a shield against NATO conventional and nuclear fire.<sup>15</sup>

## CHAPTER 4

### ENDNOTES

<sup>1</sup>U.S. Department of the Army, Soviet Army Operations (IAG-13-U-78), (Washington, D.C.: Intelligence and Security Command, 1978), page 1-6 and 1-7.

<sup>2</sup>Robert Close, Europe Without Defense? (New York: Pergamon Press, 1979), chapter X.

<sup>3</sup>Sir John Hackett, The Third World War. (New York: Berkley Books, 1980), chapter 15.

<sup>4</sup>Ibid., page 195 (chapter 15).

<sup>5</sup>U.S. Department of the Army, Nuclear Weapons Employment Doctrine and Procedures, FM 101-31-1, (Washington, D.C.: Department of the Army, 1977), par. 2-6.

Collateral Damage is undesirable civilian materiel damage or personnel injuries produced by effects of friendly nuclear weapons.

<sup>6</sup>Paul Bracken, "Collateral Damage and Theater Warfare," Survival Sept/Oct 1980, page 203-207.

<sup>7</sup>U.S. Department of the Army, NBC Defense FM 21-40, (Washington, D.C.: Department of the Army, 1977 and Change C 1 1979), chapter 5.

<sup>8</sup>U.S. Department of the Army, Military Chemistry and Chemical Agents TM 3-215 (Washington, D.C.: Department of the Army, 1963), page 10 and Table I.

<sup>9</sup>Ibid., page 16.

<sup>10</sup>U.S. Department of the Army, NBC Defense FM 21-40, (Washington, D.C.: Department of the Army, 1977 and Change C 1 1979), page 1-13 to 1-17.

<sup>11</sup>U.S. Department of the Army, Employment of Chemical Agents FM 3-10 (Washington, D.C.: Department of the Army, 1966), par. 19b.

<sup>12</sup>U.S. Department of the Army, Fire Support in Combined Arms Operations FM 6-20 with Change C 1 (Washington, D.C.: Department of the Army, 1980), page 6-21, 6-23 and 6-35.

<sup>13</sup>U.S. Department of the Army, Nuclear Weapons Employment Doctrine and Procedures FM 101-31-1 (Washington, D.C.: Department of the Army, 1977), page B-12.

<sup>14</sup>Ibid., page C-7.

<sup>15</sup>John M. Collins, American and Soviet Military Trends (Washington, D.C.: Center for Strategic and International Studies Georgetown University, 1978), page 352.

## CHAPTER 5

### CONSEQUENCES AND RECOMMENDATIONS

#### Recapitulation and Major Effects

As discussed in Chapter 3, the Civil Defense situation in Central Europe can be described as follows:

- Little to no protection is available to the population against conventional, chemical and nuclear warfare (except in Switzerland).
- Little to no information is provided to the population on modern warfare hazards, adequate protection and behavior, or "last minute" improvements of existing cellars and other facilities (except in the GDR and Switzerland).
- A reasonably good warning and alarm system is functioning in all nations for timely and tailored warning and alarm of the population and the various levels of government.
- Disaster relief and rescue organizations are equipped, trained and operational at present in all nations; however it is questionable if these organizations will be sufficient for wartime.

This situation will not be changed significantly within the next few years, since most Civil Defense measures are long term projects.

Should war break out in Central Europe as described in Chapter 4, there will be two major effects:

1. The population will pay an extremely heavy toll in terms of dead and wounded as well as destruction of property and wealth.
2. Due to the lack of protection and the fear of falling behind Soviet lines, the population will have no compelling reason to follow

the stay-put policy of the Federal government and will attempt to move westward by whatever means available.

The following subparagraphs will discuss the consequences of these two effects on the political and military leadership prior to and during wartime.

#### The Consequences for the Political Leadership

Credibility of deterrence. High ranking officials of Central Europe without exception believe that a credible deterrence and the will of the people to fight for independence and freedom is influenced strongly by faith in Civil Defense. Considering the actual situation in Central Europe, Civil Defense has not strengthened the credibility of deterrence, the will to fight, the chances for peace, or the position of government.

Credibility of government and democracy. As described in Chapter 1, all nations recognize in official documents the need and obligation to protect with armed forces not only the territory of the nation but also the life and wealth of the individual citizens. For some important reasons, these obligations are still not realized. Should war break out in the next few years, the populace would soon realize and suffer the effects of inadequate Civil Defense. The enemy propagandist's ability to capitalize on the resultant awareness of governmental neglect will certainly nourish doubt as to the government's ability to protect and defend. As a matter of fact the government will not have accomplished that mission as stated in the constitution and other official publications. As described in Appendix A, the socialist countries have propagated a theory of the humanitarian nature of socialist states and the protective effectiveness of their Civil Defense plans. There is no doubt that this propaganda will be used to cause the unprotected population to doubt the motives and

effectiveness of its own government. Eventually this will result in the belief that socialist governments (for whatever reasons) are more concerned with the well being of the individual citizen than are western, democratic governments and western credibility will be damaged. "No country claiming to be democratic has the moral right to dismiss measures which could result in the saving of millions of lives which would otherwise perish."<sup>1</sup> In a crisis the neglect of Civil Defense will undermine the strength of government and lead to the collapse of law and order.

The population as a permanent hostage. A determined enemy with its population protected, could hold hostage the populace of the Federal Republic of Germany, Belgium and the Netherlands. With an unprotected and poorly informed population the possible governmental responses to international intimidation or provocation are limited. In such a situation and even before the outbreak of war, the shocking alternatives may be suicide or surrender. In such a crisis, one can expect a resurgence of the slogan "better red than dead," which is well known in Europe and frequently employed in demonstrations against war, nuclear weapons and military modernization. Masses of citizens, confronted with their own vulnerability (as a result of poor Civil Defense) will support these "better red than dead" demonstrations and place pressure on the government to acquiesce.

In contrast the relative security created by an effective Civil Defense would stiffen the resolve of leaders to counter challenges to NATO's integrity and to their own country's existence. In a crisis a poorly protected population and a poorly developed Civil Defense would result in craven rather than courageous political decisions.

Failure of the stay put policy. The Central Europe nations have not prepared plans to evacuate large parts of the civil population. The

NATO countries adopted a stay put policy. The population is supposed to stay in place and survive war in its habitual living areas. There are many valid reasons for this policy. It will:

- maintain a limited productivity in industry and agriculture
- maintain public services in favor of the population
- keep the main avenues, roads and maneuver areas clear for friendly

forces

- maintain the governmental structures and powers, law and order
- provide the best protection available against the hazards of

warfare

- reduce refugee problems in other already highly populated areas (e.g., in the western part of the Federal Republic of Germany).

The stay put policy will only be successful if the populace understands the advantages of this policy and is convinced that it will have the best chance to survive at home. The people must believe that, by staying at home, they will have the best health service, the best food and water supply and the greatest degree of security possible. Even so it is by no means certain that the population will follow the stay put policy. The fear of falling under a communist government may well influence the decision to stay or to flee.

Unfortunately the present situation is less favorable. There is little or no collective protection available and little or no knowledge on how to improve the existing buildings and cellars to enhance survivability. A reasonable person must find it difficult to adhere to the government's stay put policy. Once the population starts moving westward by cars, bicycles and on foot, the government, armed forces and Civil Affair units will be confronted with an overwhelming flood of problems.

The effects on the armed forces will be discussed later. As described in Chapter 4, the moving population will be extremely vulnerable to the hazards of modern warfare. Providing food, water, health service and shelter will be a major problem for all levels of government. The productivity of the country will diminish rapidly and the governmental structure will collapse. Feasible courses of action are limited and government could even cease functioning.

#### The Consequences for the Military Leadership

The psychological effects. With the outbreak of combat activities, NATO soldiers of all ranks will realize that modern war in Europe is extremely costly in terms of civilian casualties and destruction and that their families have been left behind with little to no protection. This experience will be shared by the US soldiers stationed in Germany since a Soviet surprise attack will not allow timely evacuations of US families. NATO soldiers, moving and fighting in the middle of their own unprotected population will realize that their antitank, artillery and close air support fires endanger and kill their own population. The number of casualties will increase with the intensity and determination of the fight. The result will be a psychological pressure that may weaken the soldier's will to fight. As discussed in Chapter 3, some experts are doubtful of the will and ability of soldiers to fight a battle in which the unprotected population suffers heavy casualties from friendly and threat fire. The gap in Civil Defense measures will interfere with the mission of the military and limit the options available to the leadership.

Restrictions in fighting the battle. It must be said clearly, that the population, protected or unprotected, will suffer casualties from friendly fire in conventional, chemical or nuclear war. The degree

of protection available will determine if these casualties can be kept at an acceptable level. As discussed, NATO forces will be limited in targeting enemy located in urban areas. The obligation and need to limit collateral damage could result in a renunciation of nuclear and chemical weapons. The political VETO would have the same effect. With a protected population the targeting restrictions in urban areas could be relaxed and military leaders will have more feasible options. Due to the high density of villages, towns and cities in Central Europe, nuclear and chemical targeting of enemy forces in open areas will in most cases be restricted by the proximity of adjacent urban areas. This will force commanders to use more weapons of lower yield to achieve a satisfactory effect on the target.<sup>2</sup> However, the use of more smaller weapons could produce as much collateral damage by a cumulative effect. Conversely, the Soviet commander is less restricted in the use of his weapons because the avoidance of collateral damage is not one of his primary concerns. A protected population would increase the number of feasible courses of action available to friendly commanders for the battle in both built-up and open areas. Otherwise, the threat forces can obtain important advantages by using built-up areas and the unprotected population as a shield against NATO nuclear, chemical and conventional fire. Friendly maneuver and fire plans which ignore the hostage population or attempt to destroy the shield have a high risk of political veto.

The failure of the stay put policy. Once the population of the Eastern portion of the Federal Republic of Germany decides to move westward in order to gain security in the western part of the country and avoid falling behind Soviet lines, the largest movement of refugees in history can be expected. Government power will be unable to stop this movement.

It is even doubtful that civil and military forces will be able to guide this flow of cars and refugees into areas of minor importance to the armed forces. It is likely that NATO forces' movements to forward positions will be delayed. Resupply operations will be hampered and schedules disrupted.<sup>3</sup> This situation will impede the friendly and favor the threat forces. Even with a well prepared Active Defense plan, the movement of battalion sized task forces from battle position to battle position could be blocked by refugees. The plans for use of close air support, dynamic minefields, prepared destructions, artillery and antitank fire could be wrecked by moving civilians. The execution of nuclear fire plans in the middle of a moving population would result in disastrous numbers of casualties. The mixture of civilians with threat forces will significantly increase the difficult situation of friendly forces, a situation which may have no tactical solution. By taking advantage of the resultant confusion, the Soviet forces would gain maximum benefit from the shield provided by the moving population. Rumors and misinformation could create a confused and aimless flood of refugees whose presence could be easily exploited by the threat forces. A fleeing population would hamper the friendly forces so drastically that tactical plans and contingency plans would become useless. The freedom of action of the friendly force leaders would decrease to nearly zero in the face of maximum exploitation by the threat.

#### Summary

The continued neglect in Civil Defense preparations will result in extremely heavy casualties and destruction in wartime and in the failure of the stipulated stay put policy. This neglect in Civil Defense will also affect political and military leaders as indicated below:

<u>IMPACT</u>	<u>MAIN REASON</u>
<u>Limit the credibility of deterrence</u>	Only a strong overall military and civil defense creates a credible deterrence;
<u>Reduce the credibility of the government and the political leaders</u>	Objectives postulated in official publications are not achieved for different reasons
<u>Limit the options available to the government in a crisis and weaken the will to resist pressure and blackmail</u>	The unprotected population can be handled as a permanent hostage
<u>Accelerate the collapse of governmental structures and power</u>	Large portions of the population will not follow the stay put policy
<u>Place additional heavy psychological pressure on soldiers and create doubts about the sense of military defense</u>	Their own family is left behind without protection and the toll paid by the unprotected population may be unacceptable
<u>Favor threat forces</u>	The unprotected population provides a shield to the threat forces in urban areas against NATO nuclear and chemical fires
<u>Limit the use of fire and maneuver in urban and open areas for friendly units</u>	Collateral damage restrictions for friendly forces are aggravated by unprotected civilians
<u>Wreck tactical plans and contingency plans and favor threat forces</u>	The mixture of moving population and threat forces will reduce and hamper friendly maneuver and fire capabilities.

The reduced credibility of the overall defense and the weakened position of the government together with a population sensible to pressure and blackmail are facts, that will strongly reduce the number of feasible options available to the political leaders of a nation. The tendency to accept enemy conditions and demands will increase and firm determination will be rare.

Modern warfare in the middle of their own unprotected population will place heavy pressure on the friendly armed forces and may weaken their determination to fight. The number of feasible courses of action will be reduced and the enemy will exploit these limitations.

If large portions of the population start moving westward, the political and military leaders will in many cases no longer be able to accomplish their missions. The enemy will initiate everything to develop, accelerate and exploit such a situation. If he is successful in his attempt, surrender or suicide will be the two major alternatives and political leaders pressed by unrest and demonstrations (better red than dead) will try to find a political solution by negotiations and will renounce the use of military power.

#### Recommendations for Further Studies

In order to develop improved Civil Defense plans and programs and for corrective, remedial courses of action, additional research and studies are needed. I therefore recommend these studies be initiated to determine how:

- To improve the knowledge and awareness of the population for Civil Defense matters (public information and education).

Rationale: No Civil Defense program is feasible without the support of the population and without a good understanding within the populace for modern warfare and survival.

- To convince the population, that government, armed forces and the individual citizen only have good chances to accomplish their mission and to survive (in a broader sense), if the stay put policy is followed by the population.

Rationale: The stay put policy is crucial for the accomplishment of political and military missions.

- Military leaders can be better educated and trained to understand the characteristics and problems of warfare in heavy populated areas and

on how to solve and manage the problems related to this type of war.

Rationale: NATO must deal with and elaborate solutions for the problems discussed in this thesis.

- The existing peacetime disaster relief and rescue organizations could be educated and trained in order to act as experts for preventive measures within the population.

Rationale: The expertise inherent to these organizations must be used to teach and practice preventive measures within the population.

## CHAPTER 5

### ENDNOTES

<sup>1</sup>John F. Wallace, "NATO's Achilles Heel Civil Defense," NATO Review No 1 February 1980.

<sup>2</sup>U.S. Department of the Army, Fire Support in Combined Arms Operations FM 6-20 with Change C 1 (Washington, D.C.: Department of the Army, 1980), Chapter 6.

<sup>3</sup>Paul Bracken, "Collateral Damage and Theater Warfare," Survival Sept/Oct 1980.

APPENDIX A

## APPENDIX A

### THE CIVIL DEFENSE SITUATION IN CENTRAL EUROPE

#### Civil Defense in Belgium

Geographical situation, population density and infrastructure of Belgium make this country an interesting objective for an aggressor. The Belgium Civil Defense includes all measures and resources to insure the protection and the survival of the population and the conservation of the national values and the national heritage.<sup>1</sup> Belgium is very susceptible to attacks, specially an attack with the use of NBC weapons.

The warning and alarm system is connected and coordinated with the Belgium air surveillance system; an adequate system of radiation survey is established and operates for the benefit of the population. The national alarm center is prepared to emit its messages by radio. 1150 sirens are ready to alarm the population.

No shelters or shelter programs for the civil population are prepared today. No public shelters are available. The existing buildings offer some degree of protection. No protection equipment (like protective masks) is available to the population.

The "stay put" concept of NATO was accepted by Belgium for the following reasons:

- a. to keep the roads "clear" for military movements
- b. the best protection against radioactive fallout is available at home
- c. the economic power and the political structure can only be maintained, if the population stay at home

d. the public services (energy, food, health) are best maintained and made available to the population, if the stay put policy is enforced.<sup>2,3</sup>

The information and education of the population is limited to a leaflet issued in time of crisis only.<sup>4</sup> Information mixed with propaganda is practiced to get volunteers for the Civil Defense Organization.

Civil Defense units exist at different levels. At local level self protection of the population, the public services working in peacetime already and the industrial protection are the three major elements of Civil Defense. The fire fighting units are the most important elements at local level.

At regional level a Civil Defense organization is ready to act; built up of volunteers, it has 20-60% of its personnel and 40% of its equipment ready in peacetime.<sup>5</sup> It consists of an alarm center, radiation survey units, decontamination units and units for rescue.<sup>6</sup> The health service is coordinated at this level.

At national level, four "colonnes mobiles" (mobile units) are prepared, ready and well experienced during peacetime to provide additional help and to support the local Civil Defense elements. These units are mobile and flexible in the composition; main elements are fire brigade units, rescue units, transportation units for casualties. These units are used in peacetime as a disaster relief and rescue organization and are highly effective.<sup>6</sup>

#### Civil Defense in the Netherlands

Two important factors determine the development and characteristics of the Civil Defense in the Netherlands, the "Bescherming Bevolking":

a. The heavy density of population; the average density is 354 persons per km<sup>2</sup> but in the province of South Holland the density is 1312 persons per km<sup>2</sup>.

b. Forty percent of the territory is below sea level and more than 50% of the surface is upland moors, sandy deposits of the rivers and the sea: the construction of shelters is difficult and expensive.<sup>7</sup>

The warning service at national level is connected with the military air defense service for impending air attack; a well developed network of 300 NBC monitoring posts and 900 mobile NBC monitoring teams provide all information on nuclear bursts and radioactive contamination. Warning of the population would be given by siren from 3000 points throughout the Netherlands and by radio broadcasts.<sup>8</sup>

The main ideas of Civil Defense therefore are the "stay at home" doctrine of NATO for the civil population and the emphasis on relief and rescue organizations. Due to the lack of adequate space no population movements are planned. Building regulations are used to ensure that a certain degree of blast and radiation protection would be available. The population is encouraged by governmental publications to prepare the cellars of private buildings against radiation from nuclear fallout. Newer public buildings and public installations (metro stations) are prepared for Civil Defense purposes and provide additional shelters. No protective items for the civil population are stockpiled.<sup>9</sup> However, the government is studying the pros and cons of purchasing protective masks for the entire population to provide protection against chemical warfare.<sup>10</sup> Actually 300,000 public shelter places and 3,000,000 shelter places in private buildings are available, but limited protection against chemical warfare is offered by these shelters.<sup>11</sup>

The main effort is placed on relief and rescue; units and organizations at national, district and local level are today ready, equipped and trained for relief and rescue missions with a total wartime strength of 175,000 persons.<sup>12</sup> At local level the main services are the firefighting units (27,500 men), the rescue units (16,500 men), the medical units (15,000 men), the NBC defense units (9,000 men)<sup>10</sup> and the public services of the local administration. At district level, only elements of the civil NBC defense service and the civil ambulance service are available. At district level the coordination of the local units is of primary concern. At national level, the main elements of the civil defense are the 24 battalion sized mobile emergency columns for fire fighting, rescue and first medical treatment. These emergency columns are military units with a strictly humanitarian mission: assistance in areas, where the local and district resources of Civil Defense are no longer able to assume control of the situation.<sup>13,14</sup> Government has developed plans for the period 1980-2000 to improve Civil Defense.<sup>15</sup>

#### Civil Defense in the Federal Republic of Germany

Major elements of the Civil Protection, a part of the German Civil Defense are the self protection of the population, the warning and alarm system, the protection against catastrophes, the construction of shelters, the health service and the regulations to enforce the NATO stay put policy.<sup>16</sup> Only in the last ten years did the idea of the protection of the population get some support in the public.<sup>17</sup> 641 DM were spent per inhabitant for military defense and only 12.30 DM per inhabitant were spent for Civil Defense in 1978/1979<sup>18</sup>. The ratio of expenditure for military and civil defense is 13 : 1 in Switzerland, 20 : 1 in Sweden and 57 : 1 in the Federal Republic of Germany.<sup>19</sup>

The warning and alarm service is well developed; ten warning areas, largely identical with the areas of the countries (Laender), are controlled by a well equipped warning office. Liaison officers of the civil warning service are situated at several NATO air defense headquarters. The warning system is also connected with the low level aircraft reporting system. A net of NBC monitoring, observation and measuring posts is installed across the entire federal territory. In addition connections are made with the separate NBC reporting and warning service of the German armed forces.

Warnings and alarms to the population are emitted by 82,500 sirens installed and maintained by local authorities. Radio stations will also emit warnings. Public authorities and vital enterprises are connected to a wire receiver/loudspeaker or a VHF radio receiver. Five different signals can be put out of the sirens, which create some problems in familiarizing the population with the meaning of the various signals.<sup>20</sup> Comparing the warning system with the shelters available, many inhabitants ask themselves: "Why do we need all this noise by sirens, when no shelters for our protection are available?"<sup>21</sup>.

Today the Federal Republic of Germany has some two million shelter places available; about 3% of the total population benefits an adequate protection. With a shelter program for new established buildings, some two million shelter places could be created per year. It is not clear, if the law to enforce this program is already accepted by the authorities. This shelter program would cost an additional 550 million DM per year and must be shared among federal government, economy and population. No additional protective equipment like masks is planned for the civil population.

The government of the Federal Republic of Germany accepted the NATO stay-put policy and describes some of the advantages of this policy:<sup>22</sup>

- to stay at home will provide much more security and services of the day to day life than a refugee will ever have;

- the move of small groups to the west could initiate greater towns to do the same thing and a general chaos would be the result.

However, some exceptions of the stay-put policy are discussed too. In areas which are specially endangered, the population should be evacuated into safer areas as early as possible.<sup>23</sup> The means to enforce this stay-put policy are marginal.<sup>24</sup>

The participation of 600,000 men and women (1% of the total population) in Civil Protection Units is the goal of the Federal government. The nucleus of these units is the disaster-protection corps, which is a peacetime organization. The Civil Protection units are organized at county level (Kreis), which is a rather low level (the territory of the Federal Republic of Germany is organized into 327 counties). The normal tactical unit is the platoon, and company or battalion-size units are the exception. No units at country or federal level are planned to provide additional help and to support the units at county level. Main elements of the disaster-protection units are: fire fighting units, rescue units, repair units, medical units and NBC defense units. The training of these units is provided at county, country and federal level.

#### Civil Defense in the German Democratic Republic (GDR)

It is extremely difficult to obtain specific information on the actual situation of Civil Defense in the German Democratic Republic or other East European nations and the Soviet Union. Shelter places, evacuation plans, equipment of Civil Defense units and the warning and alarm

organization are not described in detail. Numerous generalized reports are available, which describe the emphasis the GDR government places on Civil Defense. As socialist Civil Defense differs in most aspects from Western Civil Defense, it would be interesting to describe some of the major facts.

The GDR Civil Defense is (since 13 Oct 1978) a new armed organ in addition to the Army, the Border Troops and the armed Security Forces. It is a branch of the GDR Ministry of Defense and is commanded by a Lieutenant General.<sup>25</sup> The Service Regulations of the Civil Defense resemble in its basic features the career regulations of the Army and the Border Troops. Civil Defense awards, Civil Defense Day (11 February), the oath of office and the description of Conditions of Service and Rank, Appointment and Promotions show that the GDR Civil Defense is a well organized and controlled para-military organization.<sup>26,27</sup>

Important tasks of the Civil Defense are:

- protection, teaching and training of the population
- secured accommodation, medical protection, protection of the respiratory tract and the body
- rescue and first aid, leadership of rescue operations.<sup>28</sup>

Political leaders often declare that the humanistic nature of socialism is the main reason for Civil Defense and the working class person is the center figure of the total effort. Reliably protecting the peaceful life of workers . . . is one of the most urgent tasks of the entire socialist society as well as of each individual citizen. Civil Defense is a firm component of socialist national defense.<sup>29</sup> Already in school, students learn the basic protection and behavior rules to survive an attack with mass destruction weapons. Since 1978, realistic Civil Defense

exercises take place in smaller towns; the entire population is involved in these exercises and practice the lessons learned in previous instructions. At the same time the population becomes familiarized with the possibility of a future war in Central Europe.<sup>25,29</sup>

### Civil Defense in Austria

Civil Defense in Austria is still in a building up phase. Due to natural disasters (floods, avalanches) and an effective enlightenment of the population in Civil Defense problems, there is a good understanding for the needs and the importance of Civil Defense. The structures and resources of Civil Defense in Austria are very specific and are based on already existing peacetime organizations for disaster relief.<sup>30</sup> Warning and alarms are provided by 5,000 sirens. A system to start the sirens by radio signals is under construction. The center of the warning and alarm system is connected with the military air defense and air observation system. Radio and TV are prepared to emit warnings and additional information.<sup>31</sup> A private organization, called "Oesterreichischer Zivilschutzverband" is charged with providing information and basic training for the population. Numerous publications for the civil population<sup>32</sup> and for the disaster relief organizations<sup>33</sup> were issued in the last years.

No special shelter program exists. Public buildings in construction are equipped with modern shelters. Seventy-five percent of the population lives in a special type of old houses with a transmission factor of at least 1/1000 against residual radiation. The cellars of these houses, with some improvements, provide adequate protection against radiation, fires and debris.<sup>34</sup> A very limited protection against chemical warfare is provided, too. No evacuation plans are ready or planned for the near future and no additional protective equipment for the population

is available or planned. In some of the countries (Laender), new buildings must have modern shelters for basic protection by law.<sup>31</sup>

The peacetime disaster relief organizations like fire fighting units, Red Cross, civil police and others will operate as disaster relief and rescue organization in wartime, too. There are 4,920 voluntary fire fighting units with a total of 175,000 men,<sup>31</sup> equipped and trained not only for fire fighting missions but also for water and oil disasters, NBC monitoring and demolitions. The Austrian Red Cross is, together with the hospitals the organization to provide medical help, transportation of casualties and training of the population in first help procedures.<sup>34</sup> All these disaster relief elements are primarily located at local level. The mayors of the municipalities have great and important responsibilities in Civil Defense matters and can oblige the citizens for service in emergencies and disasters.<sup>31</sup> Eighty special units, 168 men each are ready at the level of the political district, to support the local elements if necessary.<sup>31</sup> All units at local and district level have organic NBC monitoring elements;<sup>35</sup> at federal level the radioactivity of the air and the radioactivity of rain and snowfall is monitored permanently.

#### Civil Defense in Switzerland

The Swiss Civil Defense philosophy can be characterized by "Prevention is more human and cheaper than cure; the best protection is available at your home!" The six major basic principles of the 1971 Civil Defense doctrine in use today are:

1. each inhabitant of Switzerland has a place in a nearby shelter;
2. people move into their shelters gradually in function of the increasing threat, but precautionary and before the outbreak of violence;
3. insure an independent stay in the shelters for several days or weeks;

4. shelters must be simple, robust and completely airtight;
5. no evacuation of the population is planned; that means that evacuation is vertical, downwards into the shelters;
6. organizations and shelter constructions are tailored and adequate for the specific local situation.<sup>36</sup>

The doctrine is based on the effects of modern warfare, on economic considerations and on psychological and physiological facts as well as on some given constraints like the size of the country, population density and infrastructure.

The warning and alarm system is provided by a special service of the armed forces. Sources are the air surveillance radars, the low level aircraft reporting system, a net of posts monitoring the level of gamma radiation and a net of observation posts situated nearby the artificial storage lakes in the mountains.<sup>37</sup> The warning and alarm messages are transmitted directly to the Command Post of the Civil Defense authorities at local level, who charge the alarm and signal service to alarm by sirens and other means.

Today each inhabitant of Switzerland has a shelter place nearby his living area; 75% of these shelters are ventilated with filtered air and provide 100% protection against chemical and biological agents. By the year 2000, 100% of the shelters will be equipped with modern carbon and aerosol filters. The shelters are built to resist one atu overpressure and the collapsing of the building above the shelter. It is possible to live in these shelters for at least two weeks. The transmission factor against radioactive fallout is better than 1/1000.<sup>38</sup>

The information level of the population is at an acceptable standard as each household possesses a 320-page handbook on Civil Defense.

The behavior prior to, during and after an attack with modern weapons is explained in great depth.<sup>37,39</sup> In addition Civil Defense organizations are involved in exercises with divisions and corps of the Army and coordination between Army and Civil Defense is carefully watched and discussed by the mass media.<sup>40</sup>

Each municipality is establishing a Civil Defense organization, consisting of a commander (Ortschef) with his staff and several units. The Civil Defense organization is tailored depending on the size, special hazards and characteristics of the municipality. The Civil Defense organization is subordinated to the local political authorities. Nine hundred twenty underground command posts for Civil Defense command and control units are established today which can stand a three atu overpressure; about 500 assembly areas for Civil Defense units are, all underground, completed. Major services of the Civil Defense units at municipality level are: intelligence, signal, NBC defense, medical, fire-fighting and rescue, technical services (oil, water, electricity and others); these units have no arms but are equipped with the same NBC defense items as the armed forces of the Army (protective masks, atropine, decontamination agent, gloves, chemical identification paper, cape).

Two hundred and fifty thousand men and women are trained today, equipped and ready; this is about 50% of the final number.<sup>38,41</sup> Seventy percent of the materiel required by the Civil Defense organizations is furnished to the municipalities. Whenever possible, the Civil Defense procures the same equipment as the Army.

Like all other services, the medical service tends to have all its installations underground. Seventy-four thousand protected places (50% of the final number) for casualties are established and the medical service of the Civil Defense and the Army are merging.<sup>38</sup>

At federal level a certain number of companies, battalions and regiments with a total strength of 30,000 men, a special part of the Army, is trained and equipped as a disaster relief and rescue troop, ready to support local Civil Defense organizations with special and heavy materiel and with all kinds of specialists.<sup>37</sup>

## APPENDIX A

### ENDNOTES

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<sup>2</sup>Ibid., page 15.

<sup>3</sup>\_\_\_\_\_, Problèmes de défense et stratégie - La défense interne de la Belgique (Publication de l'Ecole de Guerre, J-DP/2.21, août 1976), par. 5.b.(3)(d).

<sup>4</sup>Derek Wood and Rupert Pengelly, "Nuclear Defense in the European Environment, Part 2 Countering the Threat," International Defense Review 5/1977.

<sup>5</sup>Wolfgang Schwarz, Zivilschutz im Ausland II (Bonn: Bundesamt fuer Zivilschutz, 1977), page 26.

<sup>6</sup>Ibid., page 22.

<sup>7</sup>Ibid., page 105.

<sup>8</sup>Derek Wood and Rupert Pengelly, "Nuclear Defense in the European Environment, Part 2 Countering the Threat," International Defense Review 5/1977.

<sup>9</sup>Wolfgang Schwarz, Zivilschutz im Ausland II (Bonn: Bundesamt fuer Zivilschutz, 1977), page 113.

<sup>10</sup>\_\_\_\_\_, De Civiele Verdedigingsvoorbereiding ('S-Gravenhage: Staf voor de Civiele Verdediging, 1979), page 33 and 34 (in Dutch).

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<sup>12</sup>Wolfgang Schwarz, Zivilschutz im Ausland II (Bonn: Bundesamt fuer Zivilschutz, 1977), page 119.

<sup>13</sup>Ibid., page 116.

<sup>14</sup>Ibid., pp. 121-122.

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22 Bundesminister des Innern, Weissbuch zur zivilen Verteidigung der Bundesrepublik Deutschland (Bonn: Bundesministerium fuer Inneres, 1972), page 78.

23 Ibid., page 79.

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<sup>31</sup>Paul Aschenbrenner, "Zivile Landesverteidigung in Oesterreich," ZENTDOK Signatur 40345001150978A 1978 (Vienna).

<sup>32</sup>\_\_\_\_\_, Wir koennen uns schuetzen! (Wien: Oesterreichischer Zivilschutzverband, 1977).

<sup>33</sup>Wolfgang Schwarz, Zivilschutz im Ausland II (Bonn: Bundesamt fuer Zivilschutz, 1977), page 156.

<sup>34</sup>Ibid, page 153 and 155.

<sup>35</sup>Hans Sperl, "Strahlenschutz in Oberoesterreich," Oeffentliche Sicherheit 7/1976.

<sup>36</sup>Wolfgang Schwarz, Zivilschutz im Ausland II (Bonn: Bundesamt fuer Zivilschutz, 1977), page 182.

<sup>37</sup>Derek Wood and Rupert Pengelly, "Nuclear Defense in the European Environment, Part 2 Countering the Threat," International Defense Review 5/1977.

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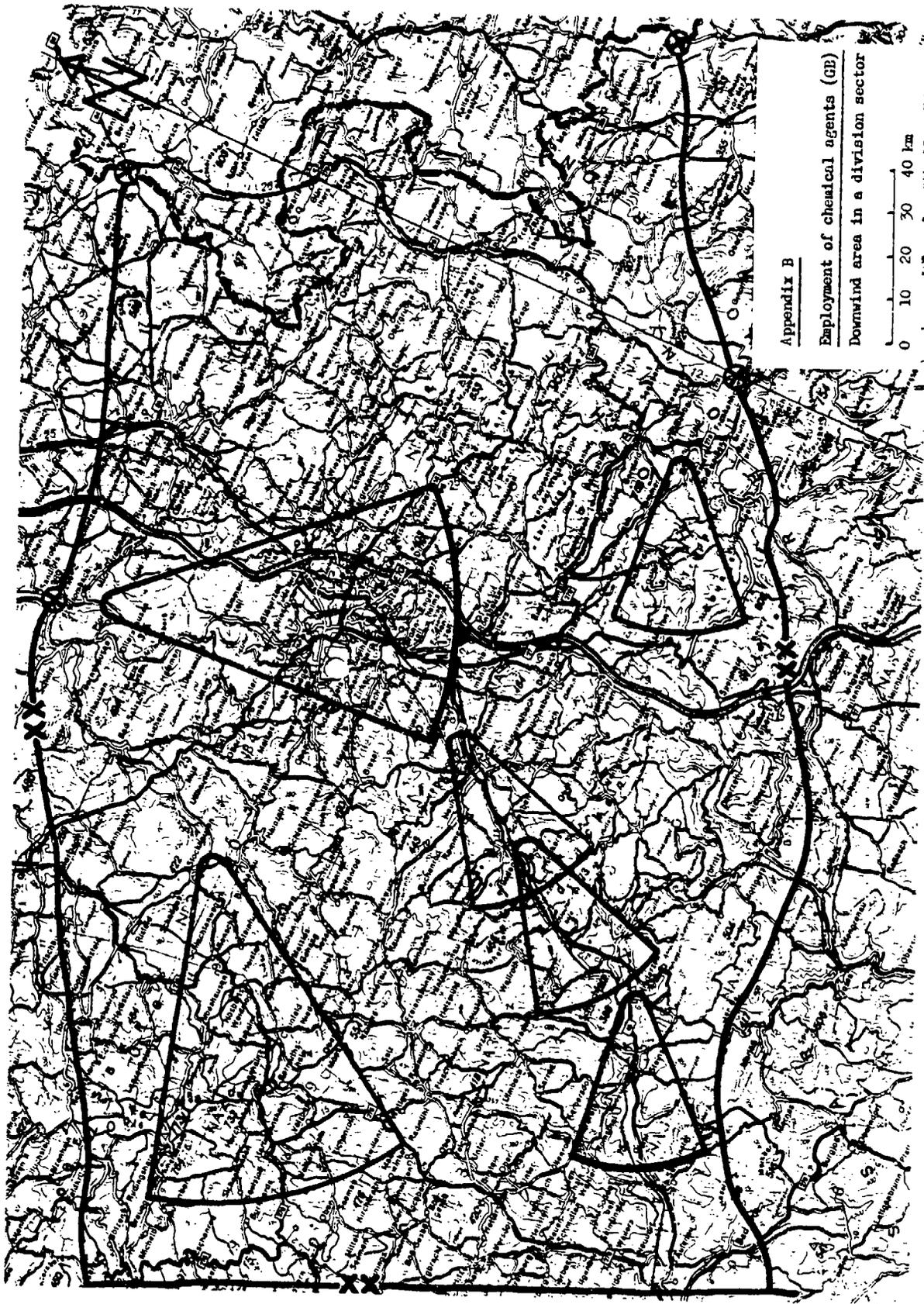
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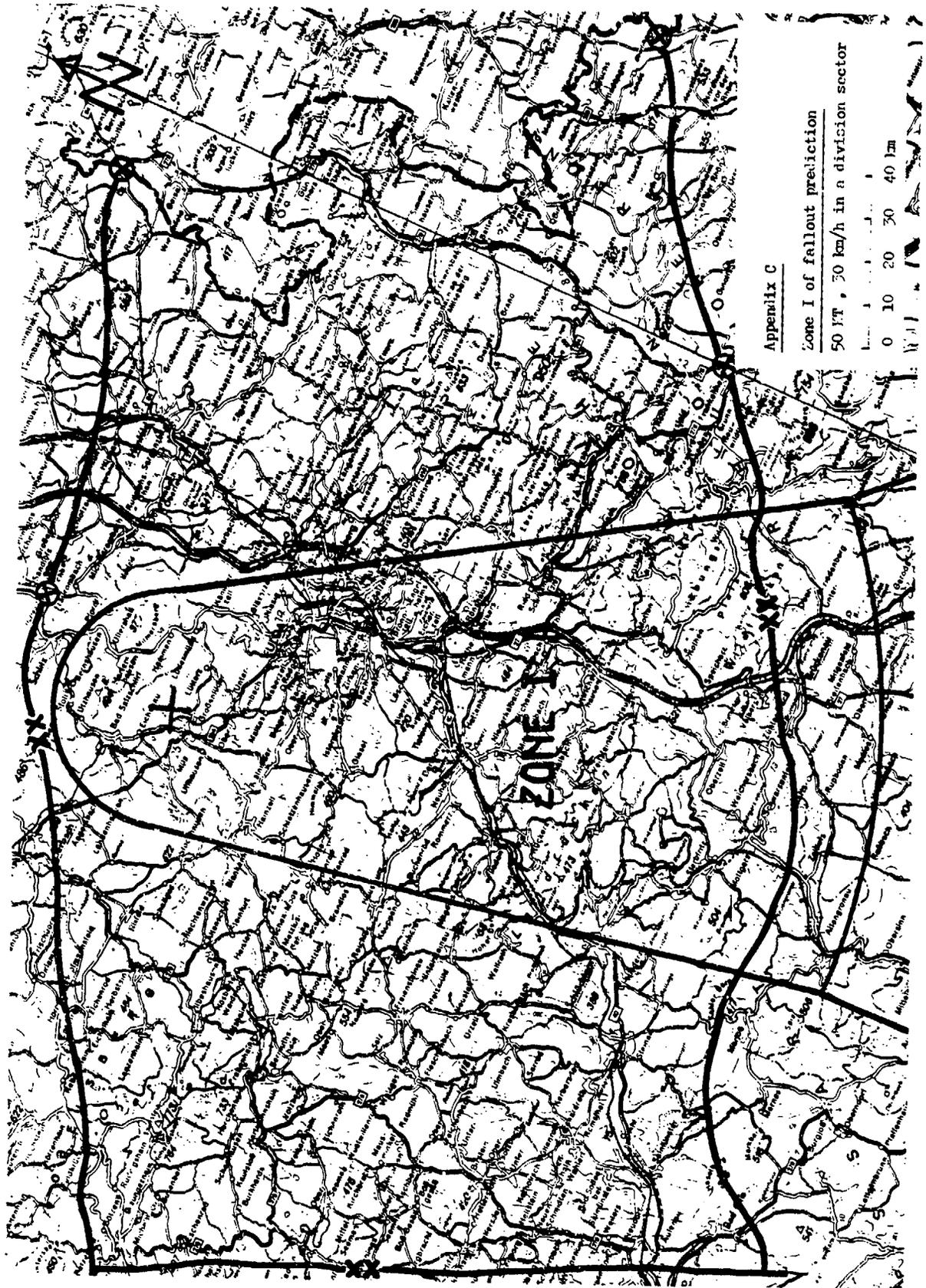
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APPENDIX B



APPENDIX C



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