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SECURITY IMPLICATIONS OF ALTERNATIVE DEFENSE OPTIONS FOR WESTERN EUROPE

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Abstract

West European security implications of five alternative defense scenarios are assessed for the period 1985 to 2000. The main characteristics of the five scenarios, one by one, are 1) current nuclear and conventional posture, 2) A submarine based, West European strategic nuclear force, no tactical or land-based nuclear weapons, but current conventional posture, 3) Same as 2) as regards nuclear posture, but a high-technology area defense with low mobility, 4) No nuclear weapons at all, territorial high-technology defense of some mobility, and 5) No military defense, but defense budget spent on international conflict prevention.

Security is appraised with repect to nuclear destruction and with respect to foreign occupation. Scenario 1 is found to lower security against nuclear destruction, scenario 4 is stable in this respect, and the remaining scenarios increase security. As for territorial occupation, scenario 4 is again stable, while all the other scenarios except number 5 improve security. These estimates are based on the assumption, that Western Europe carries through its alternative defense policy unilaterally. Arms control agreements with potential aggressors could improve security under scenarios 3, 4 and 5.

The purpose of this paper is to assess the relative changes in West European security resulting from a number of alternative defense policy implementations. Each will be described in terms of a defense planning and the corresponding set of political actions which will gradually change the defense posture from the present one into the "goal scenario" for each alternative.

First I give a brief description of each goal scenario and the path leading to it. The time frame is typically to the end of the century, but some of the scenarios may take more time to implement. After having presented the scenarios, their security implications are discussed and compared.

SCENARIO 1

The first scenario is the outcome of current defense planning. It basically rests on a nuclear plus conventional and possibly a chemical-biological force posture, each having many components that differ in use and purpose. The aim is to be able to face up to any aggression or combination of aggressions with a measured response and the ability to control escalation step by step.

The framework for this force posture is a military alliance, NATO, which makes it possible for its West European members to supply assistance to each other in case one is attacked, and to involve the United States from the beginning of a conflict, through its forces and weapons deployed in Western Europe, and later through reinforcement programmes.

A wide range of nuclear weapons, and possibly also some

chemical ones, are stored in Western Europe. Some belong to the country where they are stored, but many are owned by the United States. These include battlefield weapons, tactical and semi-strategic missiles, air-launched bombs and a number of strategic weapons.

The final step of escalation might involve the strategic weapons in the United States or on their strategic bombers and submarines.

The present arsenal of nuclear missile warheads for use in a European conflict is distributed on three kinds of launch platforms: ground-based ones (fixed or mobile), air-based ones (bomb or missile carrying planes) and sea-based ones (notably submarines). Table I gives a summary of the distribution of all nuclear warheads on launch platforms and ranges. The range is taken as the combined range of carrier and missile.

A substantial conventional army, navy and air force is kept in Western Europe, with emphasis on combat aircrafts, helicopters and artillery with a variety of short range missiles, and comprising a large number of trained soldiers (Table I).

The current threat perception involves an invasion by the Soviet Union and its Warsaw Pact allies. Such an invasion is to be met at first by a "forward defense", that is one will attempt to stop the enemy at the borders and preferably on his side. Tactical weapons will be used if the enemy makes too much progress, or if he uses them, and strategic nuclear weapons will be used, when it is judged that an acceptable settlement cannot be reached by letting the "theater war" continue.

As the Soviet Union continues to improve its force posture by introducing more reliable and more controllable weapons and carriers, the West European defense planning is seen as inevitably involving the same steps. Above that, it should make use of Western superiority in electronic technology to accelerate the sophistication of new weapons and control systems (target analysis and homing devices, automatization of battlefield analysis and command instructions). The result is expected to be the ability to detect enemy actions far behind the front line, and to preemptively attack second and third echelon forces, airfields, etc. ("deep strike").

Although the main requirements for this type of defense development is in the intelligence gathering and real-time analysis fields (Anon., 1984a), it is also expected that new types of military hardware will be needed: Multiple launch systems for tactical use (Feazel, 1984), intermediate range Pershing-2 missiles (a few of which already deployed), long range ground launched cruise missiles, additional submarines for French and British forces, new French submarine launched ballistic missiles (M-4) and stepwise modernization of British submarine launched missiles (Chevaline system and later the Trident-1 and -2 also used by U.S. submarines) (SIPRI, 1983), new tactical aircrafts (in France Mirage 2000N, in the U.K. Sea-Harrier) and intermediate range fighter-bombers with improved missile equipment (in France ASMP and later M5 missiles deployed on a reduced number of Mirage-4 planes, presently carrying free-fall nuclear bombs, in the U.K. replacement of Buccaneer fighter-bombers by Tornadoes - missile equipment not disclosed). The U.S. is

going to deploy more cruise missiles on aircrafts (Arkin et al., 1984) and ships, and it will build new ground launched missiles (the MX missile), B-1 bombers and later the ATB plane with "stealth" capability. Along with this development, command and control systems will be highly improved, using very large scale integrated circuits for real-time friend or foe identification, target imaging and submarine detection, and hardening command and control centers against electromagnetic pulses and missile attacks. Furthermore, consideration is given to missile defense systems such as hypersonic interceptor missiles and later space launched boost-phase interceptors (Anon., 1984b; Adams, 1983; Morrison, 1984; Robinson, 1984; Garwin et al., 1984; Arkin, 1983).

The Soviet Union is responding to the NATO build-up by forward deployment of SS-21/22/23 missiles in East European neighbour countries, by introducing interceptor airplanes (MIG-31) with special "anti deep strike" capabilities (Anon., 1984c), and by increasing the number of (SU-24) fighter-bombers and attack helicopters. With respect to missile defense and space war technologies, the Soviet Union may have a 1-2 year lead over the United States. The current Soviet command and control system is fairly vulnerable, but it could be improved, for example by moving CC satellites to higher orbits.

It is evident, that this "business as usual" scenario does not have any "endpoint". It is a model of a continued arms race encompassing all technology fronts. Scenario 1 is the military equivalent of the "unlimited economic growth" paradigm wellknown from social debates in the 1970ies. The

basic philosophy behind scenario 1 is that "we" must demonstrate our ability to fight through any type of war, including nuclear wars.

SCENARIO 2

The second scenario is centered around the (re-)introduction of the deterrence strategy. The deterrence of a potential aggressor would result from possession of means to achieve A) assured destruction of his leadership, and B) the infliction of unacceptable damage to his society at large.

The threat against enemy leadership is important because it is the leadership that decides to effectuate the aggression. It should know that leaders will be the first to go. In order to assure this, a substantial number of very destructive weapons must be directed at any conceivable locale of enemy leadership (with multiple targeting of each location). The threat of inflicting unacceptable damage could be based upon high-yield nuclear armed missiles targeted at population centers (as in the late 1950ies).

No facilities for fighting protracted, limited or tactical nuclear wars are needed in this scenario. Therefore the nuclear arsenals can be greatly reduced. Western Europe would get rid of all land-based nuclear arms (including those owned by the United States), and it would be natural to restrict the deterrent nuclear force to long-range submarine-launched ballistic missiles. This is because the addition of air-launched ballistic missiles (on aircrafts of which a certain fleet would always have to be airborne) would make support airports abvious targets for attempted

preemptive strikes. An assessment of the development in relative vulnerability of bomber planes and submarines would from time to time be used to decide whether both are needed or not. At present it would seem that the advantage of only possessing submarine-based nuclear arms by far outweights any doubts on the development of relative vulnerability over the next 10-15 years.

A certain conventional force has to be retained in Western Europe, in order to make sure that only massive assaults may lead to the release of the deterrent weapons. Scenario 2 simply assumes that the current conventional army is kept, but that its nuclear components are removed. This would have little organizatorial effect, because the army is already trained to conduct a conventional war through all its phases, in case the conditions for nuclear escalation remain unsatisfied.

It does not matter for this scenario, which policy the Warsaw Pact pursues. If the enemy launches an attack which does not appear to be containable by use of West European conventional forces, or if the enemy uses any nuclear (perhaps extended to chemical/biological) weapons, then the full-scale nuclear retaliation will be released. It is this automatic full-step escalation which constitutes the core of deterrence.

Scenario 2 does not foresee any need for an increase in conventional strength as long as the ultimate deterrent is still nuclear. It would be natural to accompany scenario 2 with a West European pledge not to attack any Warsaw Pact member.

It has for some time been clear, that the United States

would not use U.S. based strategic nuclear arms against the Soviet Union after a Soviet attack solely directed at Western Europe (Douglass, 1980, p. 188; Kissinger, 1979)[1]. In line with scenario 1, the U.S. may in such a situation use its European based nuclear weapons in an attempt to limit a nuclear war to Europe. Since the arsenal deployed in Western Europe at present and according to scenario 1 planning contains increasing numbers of intermediate and long range missiles, it would become very difficult for West European political leaders to control the situation. Only if the Soviet Union attacks the U.S. mainland will full strategic retaliation be released.

In the light of these observations, and because scenario 2 specifically calls for removal of all U.S. nuclear weapons from Western Europe, then the strategic nuclear deterrence force described will have to be West European. The scenario thus involves an INDEPENDENT WEST EUROPEAN STRATEGIC NUCLEAR FORCE (ISNF).

This force must have sufficient strength to deter, and should be jointly operated by the West European nations (or at least several of them). In scenario 2, it would not make sense for presently non-nuclear European nations such as Denmark not to be co-owner of this force, once it is purely West European and once all tactical and land-based nuclear weapons have been removed.

SCENARIO 3

This scenario is the same as scenario 2 as far as the nuclear policy concerns, that is it involves an independent strategic nuclear force (ISNF) owned and controlled jointly

by the West European countries for the purpose of deterring.

However, the conventional defense is modified from the present "forward defense", which in scenario 1 develops into a "deep strike defense", to a "territorial defense".

A number of territorial defense postures for Western Europe have been discussed[2]. The variety envisaging a fire-barrier forward defense is not considered here, because it would allow the enemy to reach anywhere within the fire-barrier confinement by using existing missile systems of suitable range. Scenario 3 rather assumes an "area defense" with decentralized units of modest mobility.

In principle, an "area defense" could be highly mobile as well as totally non-mobile. Vehicles of mobility could comprise bicycles, motorcycles and light trucks, the latter allowing for light missile transport. Precision guided munition ("PGM", Walker, 1981) plays a very important role in all territorial defense scenarios. It is to be used against airplanes as well as against tanks. PGM launch platforms are normally mobile but could also be fixed and remotely controlled. Some PGM weapons may be handheld.

The argument put forward by Agrell (1984), that territorial defense must be centrally controlled and therefore involve vulnerable command and control sites, is probably too pessimistic. The subterranean electronic highway system (light guides and cables allowing a very high density of information to be transmitted), which is currently installed or being installed in most West European countries, could serve as a wartime communication system with lots of redundancy and substantial invulnerability. It would therefore allow leadership and control to be highly

decentralized and difficult to target, and would yet allow full cross-communication and conduction of well-coordinated actions.

In order to ensure independence in its decisions, Western Europe must itself master the technology it uses. Thus both the new conventional technology (for PGM weapons and electronic command and control systems) and the strategic nuclear technology (for the ISNF) must be in the hands of the West European countries. This means decoupling Western Europe from the technological arms race between the United States and the Soviet Union, which stretches into many areas irrelevant to a Western Europe following scenario 2. Western Europe need not follow the United States space war efforts, and it may develop electronic concepts and devices more compatible with the European scene and the requirements of an area defense, as distinct from U.S. technology, which is meant to serve purposes outside Europe and hence may have different design features.

The reasons for replacing the conventional type of defense by an area defense is to remove any offensive posture and to eliminate targets inviting for highly destructive (nuclear) warhead use. This is the reason for not wanting to make the territorial defense too highly mobile, in which case it could be viewed by the enemy as an instrument for attack. If the defense were totally stationary, it would exhibit some vulnerability, although a missile attack on all sites known to the enemy would come close to a total destruction of the area. Scenario 3 assumes some mobility (such as bikes or motorbikes), in order to obtain maximum flexibility without appearing offensive.

The scenario can be approached unilaterally by Western Europe. Should the Soviet Union start use of nuclear weapons, the ISNF will become released. Similarly if the Soviet Union becomes unacceptably "successful" in a conventional attack. The ultimate deterrent role of the ISNF lends the area defense a credibility nullifying the usual criticism (Dankbaar, 1984) of inefficiency against a blunt nuclear attack by the Soviet Union.

SCENARIO 4

Scenario 4 consists of a territorial defense for Western Europe, without any nuclear component, that is without the strategic nuclear force of scenarios 2 and 3.

The territorial defense will have to be more mobile than in scenario 3, because it should be able to throw an enemy back - out of the territory. There is no nuclear deterrence that can be used in negociating an end to a conflict, and therefore the conventional territorial force must have some offensive capabilities, although the range of possible actions should be kept as low as feasible, in order to retain the advantages of not threathening the potential enemies in ways which could fuel an arms race.

The territorial force of scenario 4 has to be complemented by a "super civil defense" capable of staging civil disobedience campaigns and guerilla warfare. There may be a smooth connection between the territorial defence and the civil defense, which would be operating once the enemy has gained possession of the territory. The territorial defense would comprise PGM weapons and advanced electronics,

e.g. including automated battefield concepts.

It would seem that the Dankbaar (1984) criticism of territorial defense concepts would be valid for scenario 4: The enemy could sit at a safe distance and fire nuclear missiles until the civil population and political leaders has had enough and submits to any coercive demands from the enemy. Thus proponents of scenario 4 will have to deal with foreign occupation and ways of responding to it.

SCENARIO 5

The final scenario presented is one based on a non-military defense. It plans in the event of a foreign aggression to focus on ways of reacting to foreign occupation, by civil disobedience and possibly by guerilla activity.

The main content of the scenario is an effort directed at the causes of war, and it proposes to spend the money saved by not having a military defense on international conflict prevention. This could be in the form of assistance to regions with social problems, and by undertaking an initiating role in promoting better understanding and furthering negociations between the superpowers and any aggressive regimes or movements of international relevance.

Sanctions in the form of political and economic pressures could be used against nations unwilling to move in peaceful directions. Historical analysis does not warrant much optimism regarding this approach, but it is conceivable that individual nations or groups of nations embarking on missions of conflict prevention will in return receive some goodwill and along with it a reduced chance of falling

victims to foreign aggression. Some would argue that on the contrary, lack of a military defense will invite aggression against countries moving towards scenario 5.

Could one imagine all of Western Europe becoming a demilitarized region? The closest example is that of Japan, which for a number of years has been more or less demilitarized. However, Japan has a defense guarantee from the United States, which is presently taking advantage of the military dependency of Japan to influence Japanese defense policy (incidentally in the direction away from the previous non-military posture).

Western Europe does not have any effective nuclear guarantee from the United States, and it would presumably lose its conventional reinforcement agreement with the U.S., in case it went in the direction of demilitarization. Scenario 5 would thus involve a substantial disconnection of Western Europe from the foreign policy of the United States. This would have the positive effect of disengaging Western Europe from the ideological struggle of the U.S. against communism and often even against social democracies. Few people in Europe share U.S. views on these matters. On the other hand, the actual danger of ideological crusades by the Soviet Union in favor of its style of communism might increase if Western Europe were to become demilitarized.

Would a chosen "Finlandization" of all of Western Europe induce the Soviet Union to use political coersion based on military threats against such a Western Europe without military defense, and would the probability of actual invasion increase? In the case of Finland this has not happened, but this may have something to do with the

preventive effect of West European and U.S. opinion. If all of Western Europe chose scenario 5, a "world opinion" would have to be mobilized in order to possibly influence the aggressor.

Anyway, scenario 5 accepts the possibility of an invasion, considering it a minor evil than a destructive (nuclear) war. A number of options remain after an invasion, rendering it almost certain that the period of foreign occupation will be finite although painful.

ASSESSING WEST EUROPEAN SECURITY FOR EACH DEFENCE ALTERNATIVE

For each of the five scenarios and the defence policies leading towards their implementation, the risk picture will have to be assessed. I do this in terms of two quantities: the enemy capability and his intentions. The enemy capability depends on his offensive strength and on our ability to avert aggressions by military defense or other means. The enemy intentions clearly depend on the force posture and defense policy chosen by our side.

The product of enemy capability and intentions as defined above is a measure of the risk of aggression. It can be estimated for different kinds of aggression, such as destructive (nuclear) war and territorial occupation. One divided by the product of enemy capability and intentions is a measure of our security. The smaller the risk, the higher the level of security. If the risk is measured per unit of time (say per year), then the quantity identified with security may be interpreted as an estimate of the time span

(years) between assaults, pertaining to a given moment in time (Sorensen, 1984). Changes in security can thus be estimated as function of time.

The uncertainty associated with quantitative estimates of enemy capability and in particular of enemy intentions is large, and the present analysis shall be restricted to relative comparison of the different scenarios. However, the use of numbers and curves is considered useful in order to keep track of the many elements of assessment needed for evaluating five alternatives over a time span of 15 years, and with respect to both nuclear destruction and foreign occupation. The graphs presented give an overview difficult to convey in words. Yet the warning must be given, that the use of numbers does not imply any larger accuracy than that contained in the verbal and by necessity subjective formulations.

SCENARIO 1

The capability of the Soviet Union to destroy Western Europe is near 100%. Little can be done in terms of defense, in case a large-scale nuclear war is launched. Soviet nuclear capabilities are increasing, but this makes little difference, as the destructive capability is already near total. The intentions of the Soviet Union to engage in nuclear war is judged as small but increasing, because of the NATO armament envisaged in scenario 1. The Soviet is increasingly disturbed over new Euro-missiles with range enabling a deep penetration into Soviet territory, and it views current U.S. policy as aggressive. If the Soviet Union believes itself threatened to an extent that in the view of Soviet leadership makes war inevitable, then it is likely to

go for the advantage of seizing the initiative (Douglass, 1980). If war in Europe appears unavoidable, the Soviet Union is not likely to move in terms of the stepwise escalation envisaged by NATO defense plans (because that would give the West all the advantages), but rather it will launch a full-scale nuclear attack on all targets in Western Europe considered important for military, industrial or leadership purposes. Only assets deemed useful to the Soviet Union (e.g. agricultural land) may be spared. Thus the scenario 1 build-up of Western nuclear and other advanced technological forces will continue to increase the risk of a destructive attack by the Soviet Union.

This could be changed only if Western Europe obtained a missile defense with demonstrated capabilities, or if the United States gained a permanent superiority in space. None of these propositions are very likely, and not at all before year 2000.

As for Soviet occupation of Western Europe, the military capability of carrying through such an occupation is modest and declining, as the NATO conventional and nuclear arms are improved continually in quality and versatility. Also the intentions of the Soviet Union to occupy Western Europe are small, probably considerably smaller that the Soviet belief that it might become placed in a situation where nuclear war in Europe could not be avoided. In any case, the type of Western defence possessed today and expanded upon in scenario 1 makes it practically certain, that large numbers of nuclear and other highly destructive weapons will be used in a conflict arising from a S.U. attempt to invade and occupy West European territory. Thus the benefits that could

be derived from possession of that territory after a war would be minimal, and Soviet intentions regarding occupation are assumed to diminish between 1985 and 2000, while the risk of having to engage in a large-scale nuclear war against Western Europe is increasing. The assumed development of the risk parameters for nuclear destruction and foreign occupation are shown in Figs. 1 and 2, along with the implied measure of security, both for this reference scenario and for the alternatives to be presented below.

SCENARIO 2

The enemy capabilities for nuclear destruction and occupation of Western Europe are the same for this scenario as for scenario 1, because the new independent strategic nuclear force in Western Europe is assumed to influence the intentions not the capability of the Soviet Union, and because the conventional forces are identical to those of scenario 1.

The phasing out of land-based and U.S. owned nuclear weapons in Western Europe is assumed to take place from the late 1980ies to the mid-1990ies. It immediately lead to a decline in Soviet intentions for a destructive nuclear crusade against Western Europe, because the rationale for such intentions (as presented above) would disappear. The aggressive intentions reach a low and stable level, once the West European nuclear deterrent is in place.

The Soviet intentions for invasion and occupation decrease more rapidly than in scenario 1, because the conventional force remaining is seen as less offensive than

the one involving intermediate and long range nuclear weapons. Political tensions between Western Europe and the Soviet Union are reduced in this scenario, because the main reasons for them are removed, and the slight increase in chances of being successful in an attempted occupation of Western Europe (without nuclear weapons) is not sufficient to turn the trend. The model assumption, that the year 2000 Soviet intentions of occupation are higher than those of nuclear assault, reflects the possibility that S.U. leadership may think that Western Europe would after all not use its nuclear force in response to a conventional force invasion. The opposite case, that Western Europe would attack the Soviet Union by using its conventional forces, or would mix into East European affairs, should be sufficiently deterred by the Soviet nuclear arsenal.

SCENARIO 3

The nuclear destruction part of this scenario is the same as for scenario 2. However, the lack of offensive components in the West European territorial defense should make the Soviet Union more secure. The initial reaction to this is seen as a reduction in Soviet intentions for invasion and occupation (relative to those in scenario 2). Towards the end of the century, the Soviet Union may perceive chances of successful political coercion or territorial invasion as being higher, with a somewhat higher level of intentions as a consequance (still relative to those of scenario 2).

The reduction in Soviet ability to carry through an invasion and territorial occupation of Western Europe, which is the standard scenario is brought about by the arms race, is not found in scenario 3. Rather, the territorial defense

would attempt to stop an attack deeper into West European territory, and the risk that the invasion may not be stopped is higher. This in itself would indicate some increase in Soviet capability relative to that of 1985, but it may be compensated for by the edge in use of advanced technology held by the Western countries and assumed to become fully exploited in their area defense. The result of these considerations is that the overall Soviet capability for getting into and occupying West European territory will remain at the 1985 level.

SCENARIO 4

Since scenario 4 does not comprise any nuclear deterrent, the Soviet intentions of a nuclear attack are not reduced as much as in scenario 2 or 3, and the capability of destruction becomes even more certain. The probability that the Soviet Union would want an extented destruction of Western Europe is small, but use of Soviet nuclear weapons in a limited war in Western Europe would be enhanced by the absence of such weapons on the Western side.

The initial reaction of the Soviet Union, if the West European countries were to aim at scenario 4, would presumably be one of goodwill, reducing the intentions of both nuclear destruction and of territorial assault. However, the nuclear intentions are then assumed to stay constant for the reasons given above, and the intentions for an occupation may begin to rise, because the Soviet Union could envisage an invasion not employing nuclear weapons and thus making the area much more useful to the Soviet Union once occupied. The rise in Soviet intentions for occupying

Western Europe after 1990 has been taken as modest, assuming that world opinion would make such an invasion unpalatable. Should the geopolitical situation change, there could be room for a more sizable increase.

SCENARIO 5

In this scenario, the Soviet intentions for nuclear destruction of Western Europe drops at least as much as in scenario 2 or 3, because the purpose of such destruction is totally absent for a region without any military defense. The pace of reduced intentions is given by the time needed to actually demilitarize Western Europe. A prolonged transition time is assumed for reasons becoming clear below.

The Soviet ability to invade and occupy clearly rises, as West European disarmament progresses. The intentions are assumed to first diminish as a result of goodwill, but then to increase due to the temptation presented by a defenseless Western Europe. However, this increase has to be modest, because if it were not, West European countries would surely revert their decision to follow scenario 5. If the fruits of spending defense money on conflict prevention do not show, then West European policy would change, so even if the Soviet Union did have bad intentions, it would be wise not to show them openly. What could happen is a rapid change in Soviet intentions, for instance connected with leadership change. This could make the risk of a successful invasion of Western Europe very high, because the non-military posture could have been made complete during a previous period of benevolent Soviet leadership. This argument against demilitarization, which may be called the "madman theory",

has been very popular since the case of Hitler. The reality is of course, that the combination of conflict aversion and non-military defense is thinkable only in combination with the will to endure a period of foreign occupation, and with plans for resistance against an occupting force. The possibility of occupation is the price being payed in this scenario for lowering the risk of nuclear destruction.

REMARKS ON COST OF DEFENSE

Without engaging in a proper cost estimation for the five scenarios, a brief look at costs will be made in order to ascertain that no alternative is completely off the board for purely economic reasons.

The reference scenario will entail rising costs in real terms. The "deep strike" capability has been estimated to require between 20 and 100 billion current U.S. dollars over a period of about six years[3]. This is followed by costly programmes of missile defense and space war. It is therefore a lower limit to assume average West European defense budgets to increase by 2 pct. annually in real terms, throughout the period 1985-2000. The United States defense budget will have to increase even more in this scenario.

It is clear that defense expenses cannot indefinitely increase in real terms, and this is one inherent inconsistency of scenario 1.

In scenario 2, the West European ISNF has to be payed for, and notably the increased number of submarines needed. However, the increase may be compensated for by the savings obtained by not having to maintain strategic planes or to retain or renew any kind of tactical nuclear arms in Western Europe. The cost of the conventional force is the largest

component of the budget, and it is the same as in scenario 1, because it is the same force. The total cost profile of scenario 2 may thus be taken as identical to that of scenario 1.

The area defense of scenario 3 may exhibit some savings relative to the conventional force of scenarios 1 and 2, but no accurate estimate can be made (Brauch and Unterseher, 1984). There is hope that the cost of the territorial defense does not escalate with time, and so the total West European defense budget may stay constant after a transition period (ending around 1995).

In scenario 4, the cost of the ISNF is absent, but the more mobile territorial defense might cost more than that of scenario 3. The stabilization of total costs may occur sooner than for scenario 3, perhaps already by 1990.

Finally, scenario 5 by definition uses the same defense budget for conflict prevention and civil defense, which would otherwise have been used for military defense. The total cost may thus be taken as the same as for scenario 4.

A more detailed cost evaluation for the components entering the different scenarios would be useful, but one should remember that most estimates of the costs of future technologies are biased, either upwards (by opponents) or downwards (by proponents).

The remarks made here suggest, that scenarios 3 to 5 are economically feasible as long-term solutions, while scenario 1 and 2 have a transitional nature, because the continued increase in real term costs cannot go on indefinitely. After year 2000, if not before, scenario 1 and 2 would have to change direction in order to become realistic proposals.

CONCLUSION

The appraisal of the five West European defense scenarios in terms of a measure of security against nuclear destruction and foreign occupation is summarized in the lower parts of Figs. 1 and 2. The importance of alternative defense views is clear from the primary deficiency of current military development: Although security against Soviet occupation is improved with time, this is paid for by a steady decline in security against nuclear destruction.

The most radical alternative, scenario 5, leads to increased security with respect to nuclear destruction, but at the expense of security against invasion and foreign occupation. Scenario 4 leads to approximately stable levels of security in both cases, while scenarios 2 and 3 improves safety both related to nuclear assault and to occupation by the Soviet Union.

The conclusion is then, that alternative defense policies involving the removal of all land-based and tactical nuclear arms from Western Europe should be seriously studied. The measures have the advantage not to require reciprocity from the Warsaw Pact members, and of the two options for a conventional defense, the one not requiring any great modifications of current planning would seem easiest to accept in the short term. That also means that the NATO alliance can continue to exist and have a defense role similar to the present one, as far as conventional forces are concerned. The removal of U.S. nuclear arms from Europe, and the expansion of the indigenous strategic nuclear

deterrent (presently consisting of 80 French MSBS M-20 missiles with 1 Mt warheads on 5 submarines and 64 British Polaris A-3 missiles carrying 3 times 200 kt warheads, on 4 submarines) will entail some revision of NATO doctrines, but primarily it will bring formal relations between Western Europe and the United States in better accordance with realities.

It is important to stress, that the discussion above cannot be used to rule out scenarios 3 to 5 or 4 to 5. The political assessment of these scenarios should consider a range of social impacts other than national security. For example, the international improvement of economic relations that might result from following scenario 5 could outweight the decrease in security against occupation. The relative weights of nuclear and territorial assaults in security assessments should be discussed. There is also the question of negociated arms reductions. All the scenario evaluations made above have assumed the measures to be unilateral. If the Soviet Union and its allies would agree to make similar reductions and ultimately to remove all nuclear arms and offensive conventional weapons, then the advantages offered by scenarios 3, 4 and 5 would greatly increase.

NOTES

1. Public attitudes in the United States support this policy (Kramer et al. 1983, p. 14)

2. See e.g. summaries by Dankbaar (1984), Brauch and Unterseher (1984) and Barnaby and Boeker (1982)

3. The lower figure is from European Security Study (1983), the higher one from Weiner, as quoted by Brauch and Unterseher (1984)

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TABLE I

PRESENT FORCE PICTURE

	US	WE	EE	SU	C
Soldiers[2] (thousands)	2050	2800	1000	2800	4400
Tanks	8000 [1]	12000 [3]	13500 [2]	40000 [1]	?
Combat aircrafts [9]	4000 [1]	3400 [3]	2200 [2]	4350 [2]	3800 [2]
Combat helicopters	9000 [1]	?	?	2000 [1]	300 [2]
Strategic bombers	500 [1]	(0)	0	190 [1]	60 [10]
Combat surface ships [11]	240 [1]	250 [1]	3 [2]	400 [1]	40 [2]
Submarines	125 [2]	23 [4]	4 [2]	370 [2]	93 [2]
Landing ships	?	210 [12]	25 [2]	246 [3]	31 [2]
Economic & technol. threats	none	(US)	WE	US & WE	(Japan)
Normative threat	none	(SU)	WE	US,WE,(EE)	(Japan)
Firepower	large	large	large	large	sizable
Command & control capability	very high	very high	high	high	modest
Nuclear missile warheads [13]:					
Short range (100-1000 km):					
Ground launched [14]	600/600 [5]	1100 [4.6.8]	-	-/700 [6]	-
Air launched [14]	1600/1600 [5]	600 [4.6.8]	-	-/3000 [6]	-
Ship launched [14]	0 [5]	10 [4.6.8]	-	-/700 [6]	-
Medium range (1000-3000 km)					
Ground launched [14]	0 [5]/10 [6]	0 [6]	-	-/0 [6]	100 [2]
Air launched [14]	0 [15]/300 [6]	146 [6]	-	-/700 [6]	>200 [2.4]
Ship launched [14]	400 [5]/100 [6]	0 [6]	-	-/60 [6]	0 [2]
Long range (> 3000 km)					
Ground launched [14]	2100/0 [5]	20 [4]	-	4000 [4]/1000 [6.7]	5 [2]
Air launched [14]	3600 [5]/0 [6]	0 [4]	-	400 [4]/600 [6.7]	0 [2]
Ship launched [14]	5300 [5]/400 [6]	272 [4]	-	1000 [4]/0 [6.7]	0 [2]
Chemical weapons [16]	35 kt	-	-	> 100 kt	-

FOOTNOTES TO TABLE I

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1 Beer (1981).

2 Paxton (1980).

3 Øberg (1981).

4 SIPRI (1982,1983).

5 Arkin et al. (1984).

6 Tromp and LaRocque (1982).

7 Joffe (1981).

8 Lunn (1982).

9 Excluding a similar number of support aircrafts.

10 Range about 2800 km (any target in SU) (Paxton, 1980).

11 Excluding patrol boats and other minor vessels.

12 Some of which belongs to the US.

13 Excluding spare or reload warheads.

14 The number following the slash pertains to weapons stationed in WE (for US) or EE (for SU).

15 Some may be included under short range.

16 Some deployed in WE (for US) or EE (for SU) (SIPRI, 1978).

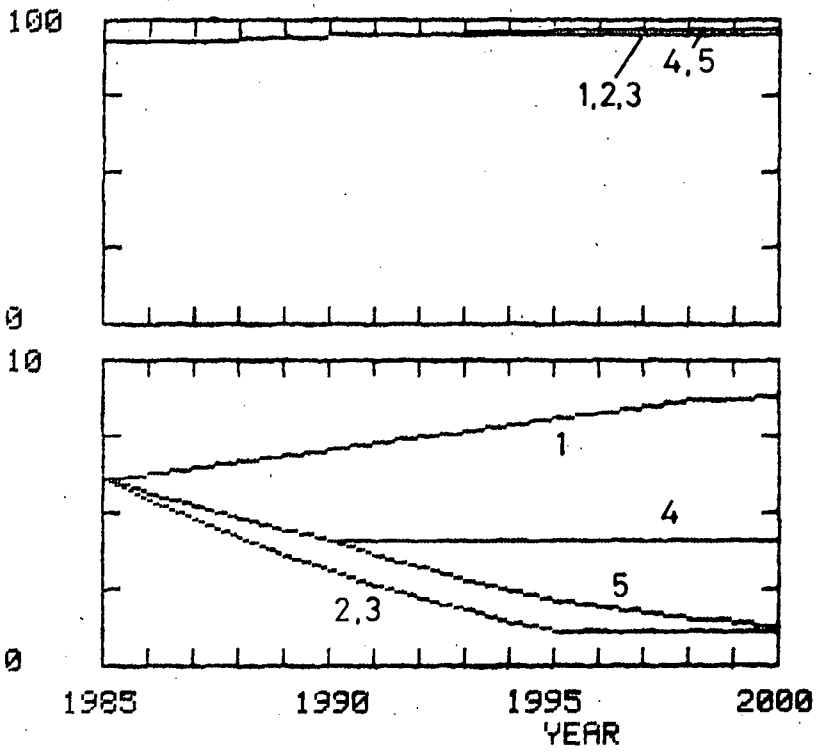
US=United States, WE=Western Europe, EE=Eastern Europe, SU=Soviet Union and C=China.

NUCLEAR DESTRUCTION OF WESTERN EUROPE

In arbitrary units:

CAPABILITY OF ENEMY TO CARRY THROUGH AN ASSAULT DESPITE DEFENSE EFFORTS

INTENTIONS OF ENEMY (CHANCE PER UNIT TIME THAT AN ASSAULT WILL BE ATTEMPTED)



In arbitrary units:

MEASURE OF SECURITY (ONE OVER PRODUCT OF CAPABILITY AND INTENT)

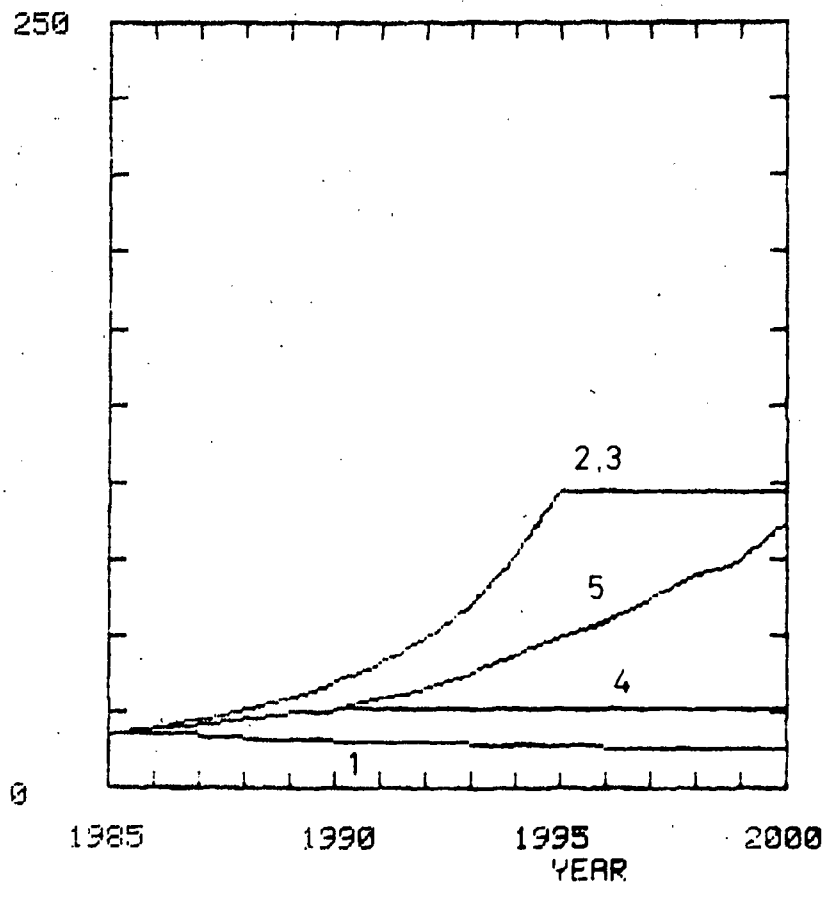


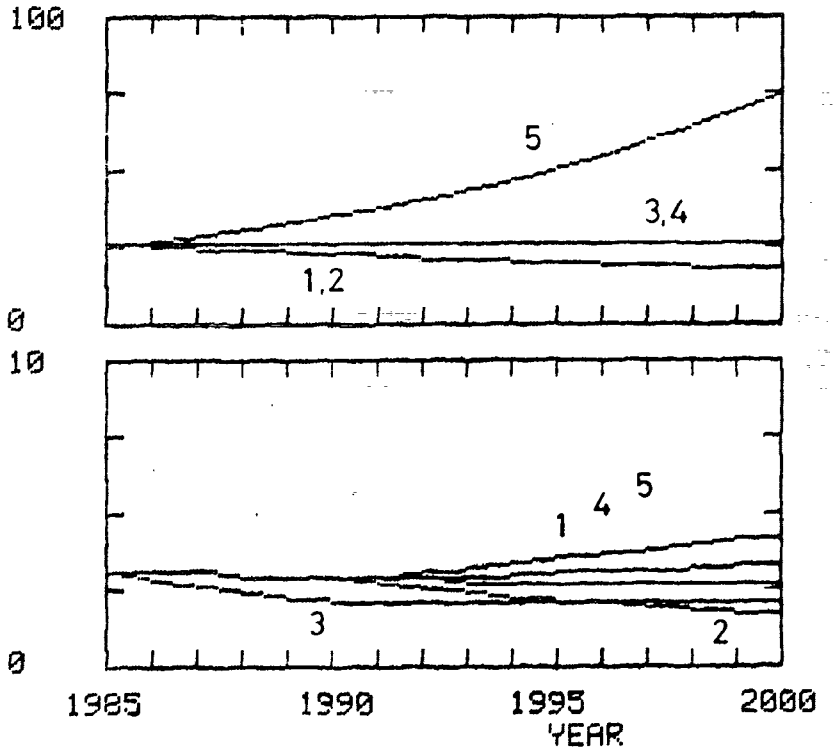
FIG. 1 Numbers refer to scenarios

FOREIGN OCCUPATION OF WESTERN EUROPE

In arbitrary units:

CAPABILITY OF ENEMY TO CARRY THROUGH AN ASSAULT DESPITE DEFENSE EFFORTS

INTENTIONS OF ENEMY (CHANCE PER UNIT TIME THAT AN ASSAULT WILL BE ATTEMPTED)



In arbitrary units:

MEASURE OF SECURITY (ONE OVER PRODUCT OF CAPABILITY AND INTENT)

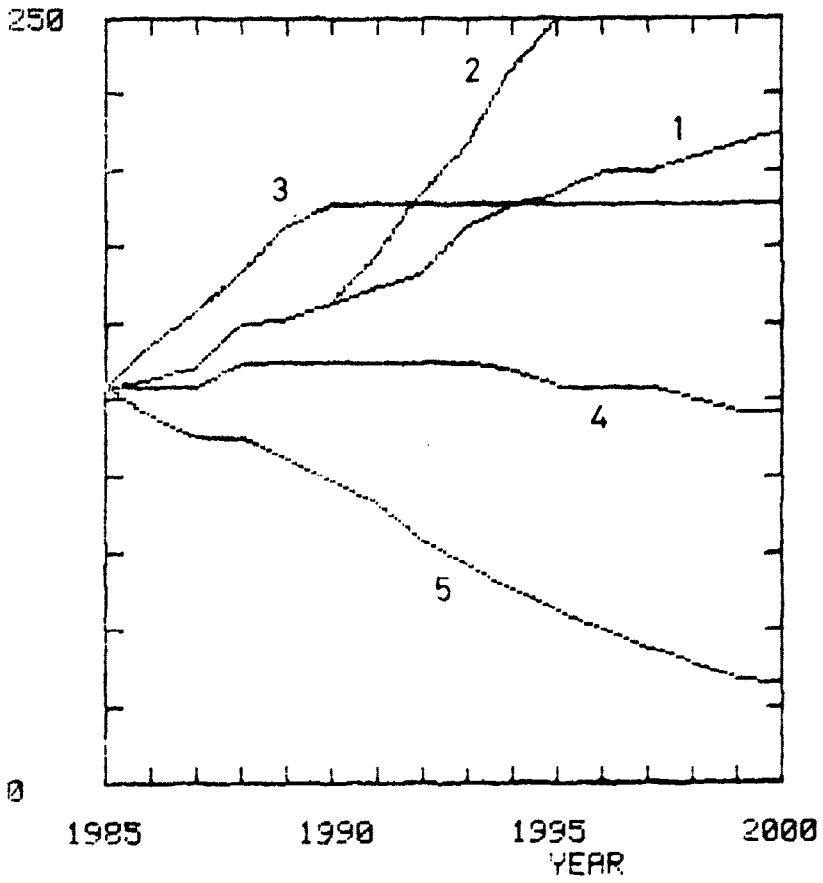


FIG. 2 Numbers refer to scenarios

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Bernhelm Booss & Mogens Niss (eds.).

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