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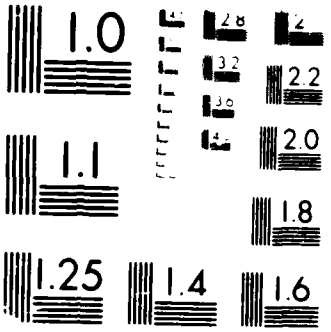

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NATO ACQUISITION STRATEGY:
A WAY TO IMPROVE READINESS AND SUSTAINABILITY

by

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JANUARY 1988

MOBILIZATION CONCEPTS DEVELOPMENT CENTER

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NATO ACQUISITION STRATEGY:

A way to Improve Readiness and Sustainability

By
Robert Fabrie

In the late 1970's, defense chiefs of the North Atlantic Treaty Organization (NATO) became troubled by the shifting balance in conventional defense capabilities. While the Warsaw Pact has held a quantitative advantage in conventional forces, NATO's qualitative edge, coupled with a flexible response strategy of nuclear escalation, provided the Alliance with a credible deterrent against Warsaw Pact aggression. Strong conventional forces above those needed to conduct a brief forward defense were considered both unnecessary and politically not affordable.

Developments in Warsaw Pact strategy and conventional defense capabilities crystallized the need to strengthen the conventional component of NATO's military deterrence. The continuing Warsaw Pact military buildup in both numbers and quality of conventional and nuclear weapons, matched by NATO's failure to make sufficient responsive investments, had put the Alliance's strategy of deterrence and flexible response in jeopardy. More important, a sustained conventional attack without the use of nuclear weapons was becoming a major element in Soviet strategy.

Deficient NATO Ammunition Stocks

The NATO defense chiefs recognized the need for improving the Alliance's conventional defense posture from one of a "nuclear tripwire" to one of a credible deterrent. As a result, they approved proposals in May 1978 to increase stocks of air-to-air, air-to-ground and associated anti-tank missiles, along with artillery and mortar ammunition. The goal was to acquire a specified stockpile of munitions and to increase defense spending by three percent per year.

The lack of ammunition stockpiles was highlighted in Secretary Weinberger's May 1984 report to Congress on Improving NATO Conventional Capability in which he wrote, "ammunition is one of NATO's most critical and persistent shortfalls." He suggested, in the same report, the relative attention which should be devoted to solving the problem. "The current situation is sufficiently serious that the need to increase munitions stocks is important enough to give that effort a higher priority than other national force improvements."

Slow economic growth, political constraints, and disagreement on how to deal with the Soviets are but a few of the reasons that NATO has been slow to respond to the strategic realities of the unrelenting Soviet buildup. Although the Alliance has the resources to respond

effectively to any military threat posed by the Warsaw Pact, improving its conventional defense capabilities will require addressing the critical deficiencies in ammunition stockpiles and the munitions production base. Any real improvements can only come about through formulation of long-term objectives based on a corporate perspective rather than just a national responsibility.

Increasing war reserve stocks of battle-critical ammunition will not resolve all of NATO's sustainability concerns, but it is one of the most cost effective investments in NATO's conventional defense posture.

Perhaps the strongest indicator of US concern over the lack of European progress in meeting NATO goals was the Nunn amendment to the Fiscal Year 1985 Defense Authorization Bill. The bill required the collective NATO membership to achieve the "agreed to" goals of 1978. Failure to meet them would result in a withdrawal of 90,000 US troops over a period of three years. The amendment was defeated, but it did serve to highlight US concerns about its NATO alliance commitments and the organization's continuing failure to meet even modest stockpile goals. While the United States over the past several years has exceeded, for the most part, the "agreed to" goals for increasing munitions stockpiles, none of our allies has followed suit in reaching that goal.

Is The Current AmmunitionStockpile Goal Enough?

Ammunition stockpiles allow the Alliance to survive the intense early days of conflict and remain able to sustain continued battlefield operations. A careful balance is required between investments in ammunition stocks and in improving the ability of the industrial base to re-supply forces before stockpiles run out. For this reason, one could question whether the current stockpile is enough for all types of ammunition.

The munitions employed by NATO cover a spectrum of capabilities and use a wide range of firing platforms and weapons systems. The inherent difference in performance characteristics requires a variety of industrial resources, material and labor inputs, manufacturing processes, and lead times. The manufacture of small arms requires relatively unskilled labor and production equipment and material that is common to the civil sector. Precision guided munitions, on the other hand, require unique and sophisticated special tooling, test equipment, parts and components with no commercial markets, and highly skilled labor.

The industrial responsiveness for the production of small arms and light infantry weapons may easily meet wartime goals within a short period of time. Significant resources are not required to lay-away plants and equipment for small arms ammunition production. In contrast, larger caliber ammunition requires more sophisticated, specialized, and capital intensive production resources that have little commercial utility.

Much of the Alliance's mobilization capacity is laid-away. For larger caliber ammunition, lead times required to "ramp-up" production are from 6 to 18 months. Such considerations may require laid-away facilities and stockpiles significantly in excess of current NATO requirements.

Threat-oriented munitions such as missiles, tank and anti-tank ammunition, and torpedoes require specific war reserve levels based on the target set presented by the enemy's forces rather than the requirement to sustain a predetermined rate of fire for a specified number of days. These munitions require highly sophisticated manufacturing resources and have production lead times that approach the lead times of the weapon systems that are their targets.

The NATO-Warsaw Part Disparity

While experts may disagree over whether it is better to increase ammunition stocks-arguments include what type and level to stockpile-or to make investments in readiness, no serious observer can dispute the widely documented evidence of an immediate need to improve NATO's munitions stocks. Many ask why NATO, with a collective gross national product (GNP) of more than twice that of the Warsaw Pact, is being outproduced in nearly every category of conventional forces. Moreover, NATO's qualitative edge, a major justification for high investment cost per unit, is slipping. While NATO as a whole spends a smaller percentage of GNP on defense than does the Warsaw Pact, nearly all comparisons show that in total value, NATO spends more on defense.

There are of course many valid reasons for this disparity in investment. However, at least three underlying factors most affect NATO's ability to improve its conventional defense capabilities. These are: the high proportion of defense outlays allocated to investment and manpower; the ability of Warsaw Pact to achieve greater standardization and interoperability than NATO; and the economic realities of munitions production.

Proportion of Defense Outlays Allocated to Investment and Manpower

First, Warsaw Pact countries are more regimented. They can rely on conscripts for military manpower and, as a result, allocate only 15 percent of their defense outlays to personnel cost. The United States on the other hand, must earmark approximately 40 percent of its defense outlays to these costs, while NATO's European members have to budget about 45 percent. Procurement-the investment in munitions and equipment-has averaged less than 25 percent of total defense outlays for the United States and 20 percent for Europe. Moreover, munitions represent only a very small portion of total purchases. The procurement of all types of munitions, for example, accounts for approximately two percent of total US defense outlays. It is doubtful that there could be any significant change in NATO investments. Two percent of total US defense outlays represents a considerable sum of

money, however. Even small increases, with well-focused investments, over a period of a few years could buy a large improvement in munitions stocks.

Estimates of Soviet expenditures for ammunition are hard to come by. Concerns cited in the annual reports of DOD to Congress about the growing stockpiles of ammunition and fuel, however, suggest that the Soviets place a much higher priority on investments to improve sustainability. Overall, the Department of Defense (DOD) has estimated that from 1974 to 1983 the Soviets invested $300 billion more in sustainability than did the United States. Because the United States and the Soviet Union account for more than 80 percent of their respective alliances' investment spending, the Warsaw Pact has thus dramatically increased its quantitative edge over NATO in both nuclear and conventional forces.

NATO-Warsaw Pact Standardization and Interoperability Comparison

The second and perhaps the most critical factor in the Warsaw Pact's relative advantage is the ability to achieve interoperability and standardization of weapons and munitions. While NATO has officially committed itself to rationalization, standardization, and interoperability (RSI) of its weapons, a look at the fielded weapons and ammunition produced by NATO countries reveals a different reality.

NATO currently fields four main battle tanks (comparable to the US M1 Abrams) produced in five (soon to be seven) NATO countries. Compounding the problem is a lack of compatibility in the ammunition the tanks use. One of the tanks, for example, features a 120mm tank gun different from the 120mm guns mounted on other NATO tanks and requiring totally incompatible ammunition. NATO also fields more than two-dozen anti-tank weapons from at least ten producers located in seven countries, as well as more than 100 different incompatible tactical missiles.

There are more than 50 types of ammunition used by NATO Forces. Certainly different calibers and types of ammunition are needed, but even within the same type of ammunition-155mm artillery projectiles, for example-there are variations in the guns that the projectiles may be fired in, the propelling charges to be used, and the projectiles' fuses.

RSI makes economic sense for NATO. Obvious advantages include the ability to share essential commodities across national forces, the elimination of duplication, the conservation of scarce investment resources, and the economy of scale. Indeed, studies by NATO in the 1970's estimated that combat effectiveness was reduced by between 30 to 40 percent as a result of the Alliance's failure to standardize defense products. Between $10 and $15 billion was being wasted annually.

On the other hand, some argue that it may be unrealistic to achieve RSI goals. They say economic protectionism, the fear of loss of

technology, and a desire for military national self-sufficiency will make them unattainable. Moreover, because the United States has defense commitments that go beyond the Alliance, weapons are needed to meet requirements that European producers would not want to consider. Even within the European theater, a country's size, force structure, type of threat that it may face, terrain, and climate all lead to different weapon requirements.

The crucial requirement for ammunition, however, is its effect on the target, not the considerations that dictate the design of the weapons system or firing platform. Standardizing ammunition requirements to the greatest extent possible and assuring a great degree of interoperability offers a tremendous potential for improving NATO conventional defense capabilities. It simplifies logistics and has a profound effect on the capability and responsiveness of NATO's munitions production base.

With so many sources and variations, even within the same caliber of ammunition, producers cannot take advantage of economies of scale or balance production resources. The 155mm howitzer ammunition, for example, uses both single- and triple- base propellants with different packaging and charges. The round produced by one NATO ally is incompatible with that of another. In a crisis, if one country had the additional propellant production capability needed by another producer, there is no certainty that one producer could readily take advantage of the other's spare capacity.

Economic Realities of Munitions Production

Finally, the economic realities of munitions production also present a formidable challenge for many NATO countries trying to maintain a responsive mobilization base. Ammunition requires significant excess capacity (10 to 100 times as much) to bridge the gap between peacetime consumption and wartime requirements. It also represents a sizeable fixed cost in idle or under-utilized plant and equipment that must be amortized in the price of ammunition procurement.

The making of ammunition poses the same production dilemma inherent in the wartime supply of all defense materials: its production is highly dependent on a sound industrial capability, but has little commercial utility. Because there is little peacetime need for munitions, a wide variation of required production capacity exists between peacetime consumption and wartime needs. These characteristics create an unattractive business environment for NATO producers.

Unlike producers in Warsaw Pact countries, most NATO ammunition plants are privately operated and, except in the United States, their governments do not invest in mobilization capacity. It is unrealistic to expect these profit-oriented companies to invest in excess capacity for mobilization without government funding. In the absence of this funding, European ammunition manufacturers generally size their production capacity only to meet peacetime needs. While European

allied peacetime production orders often underuse the ammunition production base, available capacity could not support mobilization requirements.

Indeed, few countries, including the European allies, can afford an autonomous production base capable of producing a wide range of munitions in the quantities required for a conventional conflict. European companies generally do not have the advantage of economies of scale within their own domestic market that exists in the United States. Instead, they look to international cooperation and export sales, which are necessary to get satisfactory returns on their investments. They tend to rely on offsets, work sharing, and interdependent production arrangements with other countries in order to maintain an economically viable defense production base and keep weapons systems affordable.

What Can NATO Realistically Do?

The shift in the balance of military capabilities has given NATO a clear imperative to accelerate its conventional defense efforts. While NATO has the resources to respond to any Warsaw Pact threat, it cannot rely solely on its economic advantage and industrial capability to offset military vulnerabilities. Recent cutbacks in US defense budgets along with continuing economic concerns throughout the Alliance will place a premium on cost-effective remedies to improve conventional defense.

An alliance of shared defense places an exacting premium on the ability of equipment and munitions of different forces to work together. Logistics cannot be a national responsibility. Moreover, it does no good for one nation to double its efforts in order to have adequate ammunition stocks when an ally cannot put forth the same effort. Most NATO member nations cannot realistically increase defense budgets enough to meet all of the challenges that now confront the Alliance.

Before the Alliance can improve conventional defense capabilities, it first must address critical deficiencies such as low ammunition stockpiles and the sluggish responsiveness of the munitions production base. Increasing ammunition stocks and improving production capability is neither a short-term initiative nor is it inexpensive. However, it is one of the most cost effective and achievable programs that the Alliance could undertake to improve its conventional defense posture. Improvements must be made through the following sustained alliance-wide efforts.

A NATO Ammunition Acquisition Strategy

NATO needs a long-term strategy for the acquisition of battle-critical ammunition in quantities sufficient to form an adequate stockpile.

NATO's munitions production capability is largely the aggregate output of a limited number of major arms-producing nations, whose industries both compete and cooperate in the development and production of munitions. There is no centralized procurement. Indeed, the sovereignty of NATO countries is evident in the development and production of its weapons systems and munitions. Moreover, each NATO nation possesses distinctive material acquisition and logistic support systems.

The Warsaw Pact, on the other hand, has one nation-the Soviet Union that dominates weapons system design, development, and production. The Soviets also dominate the planning and procurement processes. As a result, the Soviets exert a strong influence over what other Warsaw Pact nations field for their forces.

Each acquisition process has advantages and disadvantages. The Western process encourages an efficient and innovative defense industry that must compete in the marketplace. As a result, NATO enjoys a significant qualitative edge in defense systems. The Soviets, through a centralized acquisition process, have a distinct advantage in producing standardized equipment and munitions. Thus, the Soviets enjoy economies of scale, interoperability, and the ability to field new weapons rapidly, albeit possibly without an efficient translation of the newest technology into their products.

NATO and the Warsaw Pact each possess an extensive munitions production capability. Although NATO is being outproduced and there are serious concerns regarding its industrial capability to sustain a conventional conflict for any duration, the Alliance has the ability to meet any Warsaw Pact challenge. Since increasing ammunition stockpiles is one of the most cost effective measures to improve conventional defense capabilities, NATO needs to exploit its combined industrial capability through cooperative efforts in the development and production of munitions.

Exploitation could begin with cooperative efforts to develop an acquisition strategy tying ammunition war reserve stockpile needs to improving the responsiveness and capability of the Alliance's ammunition production base. In this way NATO could enjoy the best of both acquisition systems.

The Europeans already have a highly integrated production base and, for most munitions, an autonomous production capability is both impractical and unaffordable. Currently, however, cooperation is limited between a few countries and for a limited number of programs. Cooperative efforts that incorporate an Alliance-wide acquisition strategy would encourage inter-operability and the most economical use of scarce resources. Moreover, by filling the ammunition stockpiles, NATO keeps its base warm, thus remaining more responsive, and lowers the cost per round by better utilizing existing plant capacity.

Coordinated Preparedness Planning

NATO also needs to coordinate preparedness planning in order to identify critical deficiencies and constraints in expanding defense production in a crisis. This joint planning would also identify excess capacity of one NATO producer that could be used by another.

The United States is the only NATO member that has a formal industrial preparedness planning program, and it plans only for its own production needs. While co-production, licensing, and joint development programs are not as common as NATO would like, there are many munitions now being produced for which the United States is a critical supplier to other NATO allies. The United States should include the requirements of those allies in its industrial preparedness planning.

Coordinated planning is essential because most European producers are heavily dependent on the production capability of another country. Coordinated preparedness planning is probably the lowest cost and most effective means of improving the mobilization capability of the Alliance. While money may not be always available to correct serious problems in the production base, at least the problem can be defined. This will save both time and valuable resources during a crisis.

Focused Investments

NATO needs to focus investments to correct critical deficiencies in its munitions production base. By identifying shortfalls in NATO ammunition production capability through joint preparedness planning, especially as it affects more than one country or producer, the Alliance could take corrective measures, sharing costs so that no one country would nave to bear the bulk of the financial burden. Actions to correct identified deficiencies could be prioritized, conserving scarce resources by focusing corrective actions where they are most needed.

Work Sharing

Affluent NATO members should share work with poorer ones as incentives both to improve their war reserve stocks and to modernize their forces. For example, the ready availability of energetic materials-explosives and propellants-can be seen as a constraint to increased capacity in more advanced NATO countries. Producers may find it impractical or undesirable to produce them or develop more capacity. Less developed countries such as Turkey, Spain, Greece, or Portugal may be willing to do so. Possibly purchase agreements could be set in place to buy from them. These agreements could lead to increased investment in the expansion of the NATO base and accelerate NATO stockpile fill.

Benefits

The cooperative approach described above could enhance force modernization within the Alliance. The capabilities of a country's ammunition production base reflect its existing force structure. Many of NATO's southern tier countries have older types of artillery and their ammunition base is capable of producing only "dumb bombs" rather than the newer force multiplying carrier ammunition. The opportunity to produce more sophisticated munitions would both encourage these countries to upgrade their production capabilities and serve as a catalyst to modernize their forces.

Cooperative acquisition strategies coupled with collaborative production arrangements can both enhance RSI goals and foster force modernization. Both actions would improve the combat effectiveness of NATO's forces and the capability of the NATO ammunition production base. This, in turn, would improve both the readiness and sustainability of NATO's conventional forces.

While many of the above comments are directed toward the European production base-indeed that is where most of the potential for improvement exists-much could be gained by the United States. In addition to improving the overall conventional defense capability of the Alliance, there are other benefits. A stronger base could be used by the United States as surge capability in an out-of-theater conflict. Also, the United States may benefit from European designed munitions. Since they are designed for use in Europe they may be more effective than those now used by US forces. The United States, with global commitments, may have a more universal design which may not be optimum for a NATO conflict.

A Mandate for NATO

The Warsaw Pact buildup and strategy have presented the Alliance with a clear mandate to accelerate its conventional defense efforts. Many would argue that NATO cannot realistically achieve any significant improvement in conventional defense vis-a-vis the Warsaw Pact. First, NATO has spent enormous sums of money on conventional forces during the time that the Soviets have outproduced NATO and have widened the gap in overall capability. Second, increasing defense outlays to redress the Soviet 20-year buildup would be unaffordable.

Since resource requirements are significantly less for defense than for offense, it is not necessary for NATO to match the Soviet Bloc in every category of conventional forces. Long-term and focused investments to correct critical deficiencies in sustainability and force structure are badly needed but achievable through careful prioritization. Improvements in conventional defense will be expensive, but focused investments, especially to increase ammunition stocks, will be well worth the cost. Small investments, well below the NATO guidance of a 3 percent real increase per year, could easily more than double existing ammunition and precision guided munitions

production. The additional production output, if put into war reserve stocks over a period of years, would significantly increase NATO sustainability and conventional defense capability.

Increase in production orders of ammunition does not necessarily lead to a corresponding increase in cost. Studies in the United States have shown that to lay up, maintain, and re-activate idle ammunition production capacity costs as much as to run the plants at low rates of production. Active production plants are also more responsive. Lead times to ramp-up production to wartime rates could be reduced by several months.

However, measures to correct serious deficiencies in sustainability cannot be turned on and off every time there is a perturbation in defense spending. War reserve stockpiles of ammunition must be built over the long term with specific objectives in mind. More important, these long-term objectives must be made from an overall Alliance corporate perspective rather than a national one.

NATO's strategy may be best served by relying solely on adequate war reserve stockpiles to counter the Warsaw Pact threat. NATO's industrial capability need only be sufficient to meet the peacetime needs of producing upgraded stocks to counter technological obsolescence and to manufacture new munitions required by new requirements. Some limited surge capability could be included to meet additional requirements in a crisis. While obsolescence is of critical concern, it is probably better to have an obsolete munitions than none at all.

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