Arroyo Center

Rethinking Governance of the Army's Arsenals and Ammunition Plants

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SUMMARY

BACKGROUND AND PURPOSE OF THIS STUDY

The Army manages a large industrial base consisting in part of 14 government-owned plants that manufacture ammunition or are laid away to do so following hostilities, and 2 arsenals that manufacture ordnance materiel such as gun tubes, gun mounts, and other weapons-related items. These facilities occupy about 230,000 acres of DoD-owned land, about 1 percent of DoD's 24 million acres. They generate revenues of more than $1 billion a year. The oldest of the 16, Watervliet Arsenal, dates to 1813. The ammunition plants are of more recent vintage; most represent the residual of 77 government-owned, contractor-operated plants and works built or expanded to meet the needs of World War II, although three were opened during the Korean War or since. Three of the ammunition plants and the two arsenals are operated by government employees rather than contractors.

Today, the Army retains more capacity than the nation needs or anticipates that it will need. Furthermore, much of the equipment in these facilities is old, and, partly as a result of this obsolescence, they are expensive to operate.

The Army has long recognized these problems, and it has asked RAND Arroyo Center to assess options for managing this part of its industrial base. Initially, the research focused on reducing excess capacity at the two arsenals. That research suggested that downsizing through elimination of excess equipment and manufacturing space, while worthwhile, leaves the facilities with certain disadvantages that are inherent in continued government ownership of these manufacturing activities, which are peripheral to the Army's primary missions and functions. Hence, the research led to the more central issue of governance and ownership.

Later, during the conduct of the research, the Army initiated a review of its entire industrial base and folded this research into the new effort, called the Industrial Base Program Review (IBPR). The IBPR has as its mission to identify logistics infrastructure the Army can divest of without jeopardizing its ability to accomplish its national security missions. Hence, prudent divestiture and reliance on private manufacturing became an important objective of the assessment.

PROBLEMS WITH THE ORDNANCE INDUSTRIAL BASE

The research suggests the following problems with the ordnance base:

- It lacks a strategic vision and plan.
- Army ownership is a peripheral function that diverts managers' attention from more essential tasks.
- Reduced workload contributes to high unit costs.
- In the government-operated facilities, it is difficult to relate costs to outputs, and prices are distorted.
- It has difficulty competing for capital investment funds in the Army budget process.
- Ammunition receives low priority for funding, which has detrimental effects on the base.
- Extended time is required to dispose of excess facilities.
- Ammunition replenishment policy is in flux.

The Army has attempted to address the issues of the ordnance industrial base for a number of years; it has developed ideas, written plans, and reorganized. But it has not produced and adopted an overarching vision and plan for the base. The requirements determination process is faulty. Manufacturing is not a core competency for the Army. Army ownership of the manufacturing capability requires Army leaders, particularly logistics leaders, to attend to this peripheral function. However, doing so diverts them from their primary responsibilities, and it requires them to make decisions in areas that fall outside their primary areas of expertise. It has taken nearly a decade to dispense with excess plants. In the arsenals, workload associated with their principal products has declined to less than 10 percent of peak levels. Fixed costs spread over less output drives prices higher. Reductions in employment levels and elimination of excess equipment help but are insufficient to solve the problem. In the government-operated facilities, funding rules and budgeting methods distort prices and make it difficult to relate costs to outputs. In the contractor-operated ammunition plants, the problems, which are less severe than in the government-operated facilities, derive from the inability of capital investment to compete for resources against current expenditures in the Army's operating budget, leading to obsolescence and inefficiency in the base. Further, government ownership of plants sometimes leads to inefficient sourcing decisions. Ammunition does not enjoy a high priority in the budget. Army funds allocated to ammunition have been level and declining as a fraction of the Army's total budget. The level funding masks the fact that within ammunition categories, procurement varies significantly, reducing the efficiency of production. Finally, the policy under which the Army replenishes ammunition is in flux. Because there is no clear policy, the Army does not know how much replenishment capacity to maintain.

In 1997, the Pacific Northwest National Laboratories (PNNL) issued a report on the ammunition industrial base. The report urged the Army to convert its government-owned assets to commercial activities, apply acquisition reform measures, focus government activities on accurately expressing the need for munitions, use the competitive marketplace, and establish a program executive office (PEO) for this important program. The Army has established the PEO but has not implemented the other recommendations.

STRATEGY TO RESOLVE ORDNANCE BASE PROBLEMS

Many of the problems with the ordnance base could be solved by transferring functions to the private sector, and such a step would be consistent with national policy. However, some risk exists that transferring functions to the private sector might result in a loss of a critical capability, and whatever plan is adopted needs to hedge against that risk. Taking into account the problems of the ordnance base and the national policy for the government to take greater advantage of the private sector, we believe that the following strategic vision for the ordnance base will help the Army chart a course for management:

> Convert the organic base to a responsive, innovative, efficient manufacturing base, capable of meeting national security requirements while relying to the maximum practical extent on the inherent advantages of competition and private ownership of capital.

Given this vision, the next question becomes how to achieve it. We considered the following four options:

- Privatize facilities
- Create a federal government corporation
- Consolidate facilities and declare unneeded plants excess
- Recapitalize on multifunction posts

Privatize

Under this option, the plants would be sold as going concerns to ordnance manufacturers, who would agree to maintain a specific capability for a specific number of years. This method of privatization would be accomplished by declaring the property "excess to ownership but not excess to need." Unlike consolidations and closures that render property excess to need, this excess-to-ownership but not excess-to-need method includes no legal requirement to offer excess property first to other government agencies, some of which may acquire it without paying compensation to the Army. Unlike excess-to-need transfers that require remediation to be completed before the property is sold, excess-to-ownership transactions permit transfer while remediation is ongoing. Further, environmental remediation may be conducted at the programmed rates, and to the maximum extent possible, the buyer performs remediation in exchange for a reduced purchase price. This frees Army funds programmed for remediation to be applied to other Army priorities. Both the Air Force and the Navy have employed excess-to-ownership divestitures. Purchase would be accompanied by a production and replenishment contract for a set number of years, probably five, after which the Army would select sources on the basis of full and open competition. Privatization under excess to ownership but not excess to need retains current capacity; it only changes the ownership of that capacity.

Create a Federal Government Corporation

The federal government corporation (FGC) option was conceived as a compromise between the privatization option, which would leave capability in private hands, and the consolidation and recapitalization options, which would leave it in Army hands. An FGC would combine the safety and stability of a government agency with many of the incentives and freedoms of private firms. FGCs operate at the boundary between the public and private sectors and possess some of the characteristics of both classes of organizations. Federal government corporations are relatively common; the Congress has created about one a year since World War II.

Federal government corporations have many of the characteristics of a private firm: they operate as commercial organizations but receive some government subsidies; have boards of directors; can raise capital by borrowing or issuing debt; have the right to sue (and be sued); are not bound by federal procurement regulations; and their employees are not necessarily subject to civil service rules.

For the ordnance activities at hand, an FGC might be chartered first to meet DoD's ordnance requirements but also to use the existing underused capacity to manufacture commercial products. This dual authority would provide the greatest benefit at the arsenals, whose manufacturing equipment is suitable to commercial production in a number of markets, most notably machine shop, oil and gas machinery, industrial valves, and structural steel. Dual use of productive capacity would have the potential to greatly improve the efficiency of the arsenals by spreading the overhead burden across commercial products as well as Army products and converting indirect labor to direct. Both the spreading of the overhead and the labor conversion would reduce the cost to the Army of the ordnance materiel it would continue to procure from the FGC. The option would have the added benefit of stabilizing or even potentially increasing the levels of employment at the arsenals, where the workforces have suffered through repetitive employment reductions for a decade or more, destroying morale and causing a continuing hemorrhage of talent. For reasons explained in detail in the report, the FGC appears to be a less attractive option for the ammunition plants, particularly the contractor-operated ones.

Consolidate

This option would leave the ordnance base under the control of the Army. It would consolidate the needed capacity on fewer installations, declare the unneeded plants excess, and dispose of them under government procedures. The equipment would either move to the new site or be replaced. Employees would either move to the new site, transfer to other facilities, or be terminated. Consolidation could reduce overhead costs and result in more efficient operations, particularly if old equipment is replaced. While the capabilities at the various facilities are highly specialized and in some cases unique to each plant, in some cases it may be possible to combine similar processes at two plants onto a single line, achieving economies of scale. Consolidation would incur front-loaded costs to move capabilities and personnel, to build facilities at receiving locations, and often to conduct environmental remediation before transfer of property declared excess to need. Because it would involve the transfer of jobs, consolidation would incur political costs as well. Finally, consolidation of the government-operated facilities would require base realignment and closure (BRAC) legislative authority.

Recapitalize and Unify

This option envisions a long-term strategy of relocating the organic base entirely on multifunctional installations of the Army or the other services. Ideally it would be part of a broader Army or DoD base realignment strategy to eliminate the many single-function installations that today house such activities as headquarters, training, and industrial operations. It would share some of the same benefits as consolidation in terms of reducing overhead costs. BRAC legislation would be required for the government-operated facilities.

ASSESSMENT OF OPTIONS

The status of the facilities needs to be taken into account in assessing the options. They fall into three categories: arsenals; government-owned and -operated (GOGO) ammunition plants; and government-owned, contractor-operated (GOCO) plants. An installation's category affects the attractiveness of options, because each category is subject to different statutes and rules.

The recapitalize-and-unify option is set aside for two reasons. First, it depends on two problematic events: the implementation of a fifth round of BRAC, which has been authorized for FY05 but may still be uncertain, and, within a broad BRAC strategy, the adoption of this option. The other options may be implemented, at least for part of the base, without BRAC legislation or similar broader authority. Second, the option does nothing to move the base in the direction of increasing private-sector reliance, an objective that, after analysis, appears appropriate.

Turning to the remaining three options, consolidation is not without merit, but it does not offer many advantages. It would help address the problem of expensive overhead, and it could meet the Army's demands. But it does not solve other problems. It still leaves the facilities under the control of the Army, which thus will continue to expend management attention. Installations declared excess to need risk divestiture without compensation to the Army. The history of BRAC indicates that the service does not realize much revenue from the sale (about 10 cents on the dollar of fair market value). Also, the Army may be required to clean up environmental hazards before the installation can be turned over for alternative uses, and the turnover process can be quite lengthy, on average about nine years. Furthermore, the Army would incur the front-loaded relocation and construction costs associated with consolidation with little prospect of achieving economies of scale in manufacturing.

On the other hand, the privatization and federal government corporation options offer many benefits that consolidation lacks, and both can meet mission requirements. The former gets both the DoD and the Army out of the business of managing a peripheral function for which they have no special expertise and places the function in the hands of those who do. It improves access to capital and provides incentives for the owners to raise capital and invest in the plants. It also generates revenue from the sale of the plants. Because the plant does not close, workforce issues are less of a problem. Nor does the Army have to pay any construction costs as it would under consolidation, and increased competition creates incentives to reduce overhead costs.

Table S.1

Legal Constraints on Options

	Category of Facility		
Option	**GOCO Plants**	**GOGO Plants**	**Arsenals**
Privatize		No enabling authority exists. Protective legislation in place[a]	No enabling authority exists[b]
FGC	Requires authorizing legislation	Protective legislation in place for Crane and McAlester	Requires authorizing legislation
Consolidate		Protective legislation in place for Crane and McAlester	Requires BRAC legislation

[a]An A-76 competition could be conducted for Pine Bluff.
[b]An A-76 competition could be conducted.

The federal government corporation offers most of the benefits of privatization, except that it does not completely divest the government of ownership of the plants in that they remain under a quasi-government corporation (although the Army would not own them).

As mentioned, each option faces different legal constraints. Table S.1 depicts these for the three types of facilities by option. A blank cell indicates no constraint.

The GOCO plants face the fewest constraints. The federal government corporation would require authorizing legislation. However, Congress has passed many of these, so, assuming that political leaders in the affected locations supported the proposal, passing the legislation should not prove overly difficult. The same point would apply to creating a federal government corporation for the arsenals. Privatizing the arsenals would prove more problematic because no authority exists to do that directly. Consolidating the arsenals would require BRAC legislation, which the Congress has authorized for FY05 but which it could also reconsider between now and then. The GOGO plants face the most constraints because two (Crane and McAlester) operate under protective legislation that prevents the conversion of work there to contract. At the third, Pine Bluff, the provisions of Office of Management and Budget Circular A-76 could permit the conversion of some workload to contract.

WHAT WE RECOMMEND

We recommend the Army adopt a mixed strategy. Specifically, we recommend that the Army:

- Sequentially privatize 10 of the 11 GOCO ammunition plants, retaining Mississippi AAP.
- Retain the three GOGO ammunition plants as government facilities, providing a hedge of government-owned capacity.
- Create a federal government corporation for the two arsenals. After five years of operation, privatize the FGC unless overriding considerations dictate continuance as an FGC.
- Withhold all further facility-use contract competitions pending decisions on this study.

The GOCO Plants

We recommend privatization of the GOCO plants, except for Mississippi AAP, which the Army does not own. Declare the plants excess to ownership but not excess to need, so that capability is retained, plants are sold as going concerns, and likelihood of sale revenue is enhanced. Use legal authorities to transfer property before environmental cleanup is completed, and trade sale revenue for agreement of buyers to conduct cleanup. Sell the plants in packages that maximize sale value. Sequence the sales so that early lessons learned can be applied to subsequent sales. In the meantime, we recommend deferring any further long-term commitments to facility-use contractors.

The GOGO Plants

We recommend that the Army retain the three GOGO ammunition plants along with Mississippi AAP as a hedge against unforeseen need for Army-owned facilities. Retaining these four installations retains more than half of the current government-owned acreage devoted to ammunition plants.

The Arsenals

For the arsenals, because there appears to be no authority for direct privatization, we recommend that the government create a federal government corporation to own and run them. The corporation will be chartered not only to meet DoD needs for ordnance materiel, but also to use its substantial capabilities and capacities to manufacture commercial products. The corporation may be chartered either as a permanent entity or with a provision for its board of directors to recommend at the end of a five-year period whether to continue the corporation or to privatize it. We favor an assumption of subsequent privatization, but experience could indicate continuance of the FGC as the preferred long-term option.

FALLBACK STRATEGIES

Many pitfalls dot the path of these recommendations, and it is quite possible that the Army may not be able to carry out all the recommendations for one reason or another. Should one of the primary strategies fail, the Army still has options.

If a particular GOCO plant does not generate a fair price, the Army still has both a short- and a medium-term option. In the short term, the Army could sell property and perhaps buildings while retaining land, which it would lease for a very long term to provide incentives for lessees to invest as if they owned the land. While falling short of complete privatization, such a fallback would bring some of the benefits of complete privatization. Manufacturing capital would be in the hands of a firm with access to capital and incentives to modernize. As simply a landowner, demands decline for Army management attention. But retaining the land forgoes the revenues from sale.

In the medium term, the Army might consolidate some of these facilities to achieve overhead savings. But, as pointed out above, consolidations entail large front-end costs. Further, they incur the human and political costs associated with moving the workload of hundreds of employees to new locations. Finally, the consolidation leaves the remaining assets in government hands, doing nothing to move toward the vision of private-sector reliance and forgoing the other benefits of private-sector reliance. Consolidation, while potentially worthwhile, represents an inferior solution.

Turning to the arsenals, if either the Army or DoD rejects the proposal to create an FGC to own and operate the arsenals or if the Congress looks unfavorably on an administration proposal to create one, there are alternatives to consider. An option available outside of BRAC authority would be to convert one or both of the arsenals to GOCO operation, but the small and uncertain anticipated demand makes this prospect unlikely. That leaves only consolidation or divestiture under a possible future BRAC as an option. As noted earlier, this is an inferior option. One other possibility for the arsenals would require a willing buyer, perhaps a consortium of local interests, with a proposal to buy one or both of the arsenals, maintain Army-required capability, and employ the available capacity to manufacture commercial products. If the proposal met with Army approval and could provide reasonable expectation of commercial success and employment, then the Army might submit a request for special privatizing legislation, meeting the congressional reporting and notification requirements of 10 USC 2687. The likelihood of this set of events occurring, however, seems small.

HOW DOES THE GOVERNMENT BENEFIT?

What benefits does the strategy offer the government? They are of two types: intangible and tangible. The intangible but very real benefits include those of freeing the Army from managing manufacturing operations and placing the responsibility in the hands of those who know more about it. Senior Army leaders no longer have to operate outside their primary area of expertise, and the arsenals and ammunition plants now operate under market forces, which should encourage innovation and efficiency.

The tangible benefits are cost savings, and they could be substantial, both over the POM years and over a 20-year projection. Tables S.2 and S.3 show the estimated net present value of savings from privatizing the 10 GOCO ammunition plants and creating an FGC for the arsenals. Table S.2 shows the figures for the budget and POM through FY09; Table S.3 shows the same figures for a 20-year time horizon, through FY22.

Savings from privatization of the 10 GOCO ammunition plants result principally from reduced ammunition costs due to improved productivity and greater competition; revenue from sale of property; reduced government staff; and savings from ARMS appropriations net of increased tenant revenues. While the unit price contractors charge may actually rise, total costs to the Army should fall as the costs associated with the government's ownership of facilities are eliminated. The three cases, pessimistic, base, and optimistic, vary assumptions concerning sale revenue, product prices, Armament Retooling and Manufacturing Support Initiative (ARMS) costs and benefits, contract termination costs, employee termination costs, and discount rates.

Savings from the creation of the FGC for arsenals result principally from the restructuring of the labor force to industry-standard ratios of direct to indirect labor and the sharing of overhead with commercial production. The three

Table S.2

Net Present Values of Savings to the Army from Privatization of GOCO Ammunition Plants and Creation of FGC for Arsenals: FY03–09 ($ millions)

	3% Interest Rate			7% Interest Rate		
	Pessimistic	Base	Optimistic	Pessimistic	Base	Optimistic
Privatization	174	635	840	164	568	754
FGC	418	551	551	361	472	472
Total	592	1,186	1,391	525	1,040	1,226

cases vary assumptions concerning rate of conversion of commercial workload, employee retraining costs, transition costs, and initial working capital infusion.

A word of caution is in order. In privatizing the GOCO plants, there is substantial uncertainty in estimates both of sale revenue and future ammunition prices. While revenues are estimated here using conservative assumptions, one cannot know for sure what a competitive or negotiated sale will bring. But the risk is not great. In selling property, the Congress oversees GSA and will approve only sales that generate a reasonable market value. The Army can withdraw from transactions that fail to produce reasonable bids. Similarly, to the extent that competitive pressures fail to generate reasonable offers on concurrent agreements for future ammunition prices, the Army need not agree. Hence, while the uncertainty is substantial, the financial risk is small.

With regard to the creation of the FGC, the financial risk to the Army is similarly small. To the extent that the FGC is unable to fully restructure to commercial standards, even a partial movement in that direction will serve to reduce the prices the Army pays for its ordnance materiel. Even if the FGC is able to bring in only a fraction of the commercial work hypothesized in the business plan, the Army is still better off financially. Hence, the financial risk to the Army from creating the FGC is modest.

Thus, both the intangible and tangible benefits to the Army are considerable. This is not to minimize the difficulties of carrying out the recommendations. The history of the Army and its ordnance manufacturing base is long, and it has served the needs of the nation well. The changes proposed here are sweeping. Many involved with the base will be reluctant to make dramatic changes in institutions that have served their purpose well. However, the problems described above are real, and it will take major changes to resolve them. The vision and recommendations proposed here chart a feasible path for the Army to follow.

Table S.3

Net Present Values of Savings to the Army from Privatization of GOCO Ammunition Plants and Creation of FGC for Arsenals: FY03–22 ($ millions)

	3.5% Interest Rate			7% Interest Rate		
	Pessimistic	Base	Optimistic	Pessimistic	Base	Optimistic
Privatization	–64	1,062	1,583	6	861	1,240
FGC	1,177	1,732	1,732	871	1,264	1,264
Total	1,113	2,794	3,316	877	2,125	2,504

A final word. The proposed strategy will not solve all the problems identified in the base. Regardless of who owns the manufacturing assets, the Army should resource ammunition procurement in ways that enhance the stability and efficiency of its base.