Pragmatic Approaches to Revitalising Ordnance Factories

SANJAY SETHI

Introduction

In India, the Ordnance Factories (OFs), all combined together, rank 47 in the Stockholm International Peace Research Institute's (SIPRI's) list of top 100 arms producing companies in the world[1]. This massive industrial establishment, which includes 41 OFs[2] spread across ten states / union territories, came into being with the setting up of the Gun and Shell Factory at Cossipore in 1801. In the last two hundred years of its existence, the establishment has grown and diversified in many different ways, primarily on account of wars, which include World War II and the wars India fought in 1962 and 1971. The total turnover of OFs in the year 2012-13 amounted to Rs 12,935 crore[3] and they employ approximately 96,000 personnel. The Indian armed forces are the prime customers of the Indian ordnance factories and within the armed forces, the Army is the principal customer. They also provide the Central Paramilitary Forces and State Police Forces with weapons and equipment. A small fraction of their products are also exported and sold in the civil trade.

Despite two centuries of existence and steady incremental growth in the number of operational and training establishments, the ordnance factories have not been very successful in satisfying their end customers in terms of product range, responsiveness, and quality. They have also failed to further the cause

of self-reliance and indigenisation in a substantial manner. This article attempts to briefly analyse the systemic shortcomings, reflect on their causes and suggest approaches for revitalising this gigantic and state owned component of our defence industrial base.

The manufacturing base increased in size, but licensed production reduced the requirement for design and development capabilities.

Historical Background

On the eve of independence, the country had 18 ordnance factories. Nearly half the factories that the country possessed at the time of independence were created to sustain the allied war effort and, hence, owe their existence to World War II. The cumulative value of the defence production at the time of independence was estimated to be Rs 70-80 lakh[4], which included the sales of Hindustan Aircraft Limited, Mazagon Docks Limited and Garden Reach Workshop, besides the OFs.

The first post-independence decade saw no new accretion to the existing ordnance factories. Primarily because the defence budget was restricted to less than 2 percent of the Gross Domestic Product (GDP) and the government was more occupied with building basic infrastructure. However, the wars of 1962 and 1965, subsequent forging of close defence ties with the Soviet Union and the war of 1971 brought in greater attention to defence matters, enhanced budgetary allocations and increased licensed production. Almost 20 factories were added during the period and the strength of the ordnance factories grew to 39 by the end of the Eighties. The manufacturing base increased in size, but licensed production reduced the requirement for design and development capabilities. In spite of huge capacity accretions, technological dependence on the Soviet Union increased.

Organisation and Sales Profile

The ordnance factories function under the Ordnance Factories Board (OFB), which was formed on April 2, 1979. The OFB, in turn, is under the administrative control of the Department of Defence Production (DDP). The OFs are divided into five operating divisions, based on the main products/technologies involved:

- Ammunition and Explosives (A&E) - 10 Factories
- Weapons, Vehicles & Equipment (WV&E) - 10 Factories
- Armoured Vehicles (AV) - 6 Factories
- Ordnance and Equipment Factories Group (OEFG) - 5 Factories

In the year 2011-12, the OFs reported sales of Rs 10,880.87 crore. The Army, the principal customer, accounted for more than three-fourths of the total sales. Civil trade and exports accounted for one-sixth share of sales. The sales to civil industry (excluding the Ministry of Home Affairs and State Police Departments) amounted to 4.6 per cent of annual sales and exports accounted for approximately half a per cent of annual sales. Sales to the other two Services are just 4 per cent of the annual sales[5].

Sub-Optimal Performance

The harsh reality is that the ordnance factories have not been able to satisfy either their owners (DDP) or the ultimate customers (field units). From the owner's perspective, the ordnance factories should have by now reduced our dependence on imports, and from the customers' perspective, these establishments should have become the hallmark of reliance, reliability and the single point of contact for a majority of defence needs. Issues related to product quality, responsiveness to the demands of the Services, cost-effectiveness, industrial productivity and capacity utilisation have been flagged by the Comptroller and Auditor General (CAG) in his annual reports and are summarised in the succeeding paragraphs.

Quality

A few instances related to ammunition, which demands the highest quality standards, are detailed with a view to present the magnitude of the problem[6].

- Twenty-six percent of the first consignment of Pinaka rockets was rendered unserviceable due to quality issues related to the propellant. The loss amounted to Rs 48.76 crore.
- Thirty-three lots of armour piercing incendiary ammunition valued at Rs 6.04 crore were rendered unserviceable and defect analysis indicated defective manufacture of primers and deficient quality control mechanism.
- Thirty-five per cent of detonators produced by an OF between January 2008-October 2009, costing Rs 4.64 crore, was rejected on quality issues like use of vintage components supplied by the ammunition factory and barium chromate procured from trade, with deviated specifications.

While the contemporary private sector is striving to implement Six Sigma (defect rate of 3.4 parts per million), our primary defence suppliers are struggling with 26-35 per cent defects. The problem is not restricted to ammunition alone. Inefficient manufacture and inadequate quality control by the factories of the Ordnance and Equipment Factories Group (OEFG) has also been reported upon by the CAG. Apart from the very tangible financial loss, the Army suffers immensely on account of the adverse impact on the morale of the troops, who not only tend to lose confidence in their weapon system/equipment but also at times suffer physical repercussions of resulting accidents.

Responsiveness to the Services Demand

The Services placed a demand of 3,650 items on the Ordnance Factories Board during the five-year period from 2007 to 2012. On an average, targets for 30 percent of the indents could not be fixed; only 38 percent of the items indented were manufactured as per target; and, for the balance 32 percent, targets could not be met in time. Further, trends indicate that indents manufactured as per target decrease by 7 percent every year.

Product Costing Mechanism

Instructions demand that the ordnance factories recover from the armed forces the actual cost of issues. However, the price charged has often varied from the actual. The timing of debiting the Services has also been questionable at times. The Accounts Officers of the 13 ordnance factories, in violation of the instructions, accepted advance issue vouchers submitted to them by the factories on the last day of the financial year viz. March 31, 2011, and debited the armed forces Rs 2,210.48 crore towards issue of stores, despite the fact that these items were physically issued in the next financial year between April 2011 and August 2011.

Cases observed by the CAG in factories of the OEFG are presented in Table 1. A perusal of the prices of Tent 4M and Fly Outer of Tent 4M indicated in the table, brings forth inexplicable variations in labour and overhead costs.

Table 1: Price Variation Cases of the OEFG (Source – CA No. 24 of 2013)

Item	Factory	Material Cost (₹)	Percentage of Variation	Labour Cost (₹)	Percentage of Variation	Overhead Cost (₹)	Percentage of Variation
2008-09							
Parachute SD & SM	OEFH	2,690.13	3	1,442.26	16	2,163.39	37
	OCFA	2,783.82		1,678.27		2,953.76	
Tent 4M	OEFC	18,935.88	1	1,758.97	131	2,708.81	194
	OPF	19,172.16		4,064.92		7,967.24	
2009-10							
Tent 2M	OEPC	18,495.70	4	2,628.10	104	4,237.16	17
	OPF	19,225.52		5,373.35		4,940.79	
Tent 4M	OEFH	409.16	5,581	5,121.55	29	589.19	998
	OEFC	23,242.63		3,970.46		6,471.86	
Parachute SD 8.5M	OCPA	2,392.74	113	2,508.00	66	2,897.74	154
	OEFH	5,100.11		4,156.81		2,897.74	
Trouser Combat	OEFH	221.42	52	351.54	52	318.84	93
	OCFA	336.00		533.50		616.20	
Jacket Combat	OEFH	158.41	81	291.38	48	228.12	119
	OCFA	286.51		432.05		499.02	
2010-11							
Tent 4M	OEFC	26,152.40	51	5,284.62	1500	6,771.95	1121
	OEFH	39,477.46		328.54		554.85	
Trouser PV DD OG	OEFH	195.72	19	55.31	456	93.47	269
	OCFS	164.65		307.80	456	344.69	
Trouser Combat	OCFA	324.70	34	522.02	22	580.80	26
	OEFH	433.99		428.95		729.21	
Parachute SD 8.5M	OEFH	3,227.27	6	1,591.75	41	2,703.86	10
	OCFA	3,412.21		2,241.91		2,970.68	
Fly outer of Tent 4M	OCFA	6,207.38	13	90.35	3,039	159.84	2,174
2011-12							
Jacket Combat	OEFH	47.63	824	238.15	101	414.12	20
	OCFA	440.02		479.79		498.98	
Fly outer of Tent 4M	OEFC	7,019.90	7	3,011.47	2,490	3,880.60	1797
	OEFH	7,489.24		116.29		204.58	
Net Mosquito	OCFS	162.66	97	163.80	516	238.29	716
	OEFC	321.13		26.61		29.22	
Bag Kit universal	OEFH	236.01	169	10.40	2,145	17.68	1,670
	OEFC	635.97		233.49		312.93	

Productivity

The average *output per person engaged* for the domestic industry as per the Annual Survey of Industries 2011-12 is Rs 43.00 lakh. The *output per person engaged* of the OFB is Rs 12.91 lakh or about 30 percent of the domestic civil

industry output[7]. This implies that if the wages of the OFB and the civil industry are assumed to be at par, then the direct labour cost for the manufacture of a single unit of any commodity will be 330 percent higher in the case of the OFB. The labour cost, in reality, would be much more, as the average wage in private industry is much less than the total emoluments of the lowest Pay Band (PB-1) in the government.

OFB is operating in a sellers' market with captive clients.

Capacity Utilisation

The average capacity utilisation during the five-year period from 2006 to 2011 was 75 percent. In aggregate terms, 205.5 million machine hours went unutilised during the period. In the year 2010-11 alone, 51.9 million machine hours could not be utilised[8]. The ordnance factories do not utilise one-fourth of their capacity despite significant user demand and pending work-in-progress jobs. Outsourcing/trade procurement is resorted to despite availability of in-house capability, and issues to the Services are less than the demand even after seeking of trade assistance. The underutilisation increases the share of fixed overheads and leads to increased cost of production.

Contributory Causes

The chief cause of sub-optimal performance is the fact that the *OFB is operating in a sellers' market with captive clients and, therefore, it enjoys the freedom of choosing what to deliver, when to deliver and at what cost*. The market pressures which motivate the private entities to innovate, adopt best practices, and deliver value to the end customers are missing in the case of the OFs. It is these market pressures which bring in a culture of constant feedback and performance evaluation with a view to ensure survival in a competitive market. The OFB, on the other hand, is always assured of government support despite sub-optimal performance. As there is no threatening pressure, there is an absolute lack of resolve to modernise, adopt industry best practices and raise the workforce quality threshold.

All the other causes of sub-optimal performance owe their existence to the absence of competition. Notwithstanding the fact, it is pertinent that near complete absence of integral design and development capability is the next most serious problem in the OFB. Further ageing infrastructure, inadequately trained/motivated workforce, poor organisation culture, and lack of autonomy also contribute towards sub-optimal performance.

Approaches to Revitalisation

The simplest cure of all maladies that the ordnance factories suffer from is to privatise them and throw them open to competition. This will force these slow moving giants to perform with agility. However, this is easier said than done in view of political sensitivities and the ability of unions to protest on the issue. Therefore, though cent per cent privatisation is an ideal solution, it is not discussed further in view of the difficulties in its implementation. Three feasible approaches to revitalise the ordnance factories are discussed below.

Approach I: Incremental Improvement of Existing Entities

The approach primarily involves making expenditure on modernisation. This is the most easily implementable approach and primarily involves making budgetary allocations. Therefore, this also is the government's first choice. The DDP will spend an unprecedented Rs 15,000 crore on the ordnance factories during the 12th Plan (2012-13 to 2016-17) on upgrading, modernising and supplementing the production facilities. However, the results of such an endeavour may not be commensurate with the expenditure incurred. In the first place, the OFB will find it difficult to utilise funds at the rate of Rs 3,000 crore per year. Secondly, even if it is able to do so, modernisation of public enterprises alone cannot make them as efficient as private enterprises that operate dynamically in the free market economy. Thirdly, such an investment will have a detrimental effect on the aspirations of the nascent domestic private sector of the country.

Approach II: Corporatisation

Corporatisation is the process of transforming state assets, government agencies, or municipal organisations into corporations. It refers to a restructuring of government and public organisations into joint-stock, publicly listed companies in order to introduce corporate and business management techniques to their administration[9].

The Kelkar Committee in Part-II of its report, "Towards Revitalising Defence Public Sector Undertakings and Ordnance Factories" recommended that the ordnance factories should be corporatised into a single corporation under the leadership of a competitive management. The committee recommended that the corporatisation could be on the lines of Bharat Sanchar Nigam Ltd (BSNL) and the corporatised entity should be accorded the status of Nav Ratna. The committee emphasised that corporatisation does not necessarily mean

privatisation. Dr. Vijay Kelkar during his oral evidence, informed the Standing Committee on Defence as under:

> Here, I should tell you that we met the Ordnance Factories and Defence Undertakings labour unions. They have thought a lot on this subject and I would suggest the Committee invite and meet them. …..Ordnance Factories do not have their own R&D and they cannot decide on their vendors, hence, they are not efficient…. They shall have more autonomy. Give them more powers and make them autonomous. Like any modern organisation, let them choose their own supplier and technology. Even with Rs. 10,000 crore of annual output they do not have R&D. Even small Indian firms have their own R&D. There is a genuine demand of the ordnance factories to have more powers. Once you corporatise them, I think, you should give them adequate powers…..a private sector is producing ten times more than what they are producing today.

Dr. Vijay Kelkar's argument is very valid since the output per person engaged by the DPSUs is almost two and a half times that of the OFs. However implementation requires exhaustive talks with the unions, a fact which Dr Kelkar brings out right in the beginning of his oral evidence.

Approach III: Corporatisation and Privatise

Corporatisation into one large gigantic corporate entity has its own challenges. The experience of other nations, including that of the United Kingdom, in the case of the Royal Ordnance Factories seems to suggest that a fragmented approach is more feasible than tackling the varied lot of ordnance factories together. Therefore, the solution lies in following the middle path by:

- Retaining the healthy factories producing high technology, state-of-the-art products in their present form.
- Privatising those which produce commercially available, low technology products.
- Corporatising the rest.

Conclusion

The man behind the gun is what matters! There is no doubt regarding either the *man behind the gun* or the adage. However, *let us not ignore the gun altogether*, because the consequence of ignoring it can be disastrous. There is a crying need to address the current state of the OFs and before we infuse huge funds

to mordernise them, it would be only prudent to consider the pros and cons of implementation of the three approaches discussed above. Adoption of Approach III would go a long way in revitalising the OFs and, therefore, formulation of a roadmap for its implementation is strongly recommended.

Col **Sanjay Sethi** is a Senior Fellow at CLAWS.

Notes

1. "Military Spending and Armament" (2012). Retrieved May 26, 2014, from SIPRI: http://www.sipri.org/research/armaments/production/Top100/2012#_edn12
2. Includes two new factories at Nalanda and Korwa.
3. Department of Defence Production . (n.d.). Retrieved May 11, 2014, from Cabinet Secretariat, Performance Management: http://www.performance.gov.in/?q=department/defense-production
4. DR Mohanty, *Changing Times? India's Defence Industry in 21st Century* (Bonn: Bonn International Centre for Conversion, 2004).
5. All the figures are for the year 2011-12 and have been extracted from the CAG's report for the year.
6 CAG, *Report of the Comptroller and Auditor General of India on Army and Ordnance Factories (Report no. 30 of 2013),* (New Delhi: CAG, 2013).
7. The figures for the OFs have been worked out based on data indicated in the CAG's report. Figures for the PSUs has been worked out on the basis of their annual reports.
8. All the figures have been extracted from the CAG's report for the year.
9. Investopedia. "Corporatization". Retrieved July 08, 2013.