CHAPTER VIII : ORDNANCE FACTORY ORGANISATION

8.1 General performance of Ordnance Factory Organisation

8.1.1 Introduction

The Ordnance Factory Board (OFB) functioning under the administrative control of the Department of Defence Production, Ministry of Defence, is headed by the Director General Ordnance Factories. There are 39 factories divided into five products based Operating Groups[13] as given below:

Sl. No.	Name of Group	Number of Factories
(i)	Ammunition & Explosives	10
(ii)	Weapons, Vehicles and Equipment	10
(iii)	Materials and Components	8
(iv)	Armoured Vehicles	6
(v)	Ordnance Equipment (Clothing & General Stores)	5

Two more factories *viz.* Ordnance Factory Nalanda and Ordnance Factory Korwa are under project stage for which ₹ 920.57 crore and ₹ 69.01 crore, respectively, had been spent up to March 2011 against the original sanctioned cost of ₹ 941.14 crore (revised subsequently to ₹ 2160.51 crore in February 2009) and ₹ 408.01 crore, respectively. The Ordnance Factory Nalanda - earmarked to manufacture two lakh Bimodular Mass Charge System *per annum* and Ordnance Factory Korwa - being set up to manufacture 45,000 carbines *per annum* were scheduled to be completed by November 2005 (revised to August 2011) and October 2010 (revised to March 2011) respectively. But they were yet to start regular production so far (July 2012).

8.1.2 Core activity

Ordnance Factories were basically set up to cater to the requirement of Indian Armed Forces. The core activity of Ordnance Factories is to produce and supply arms, ammunition, armoured vehicles, ordnance stores, *etc.* based on the requirements projected by Indian Armed Forces during the Annual Target Fixation meeting held every year. These requirements are later on confirmed by Indian Armed Forces in the form of Indents.

[13] ***On a functional basis, the factories are grouped into Metallurgical (5 factories), Engineering (13 factories), Armoured Vehicles (6 factories), Filling (5 factories), Chemical (4 factories), Equipment and clothing (6 factories)***

However, to utilise spare capacity, the Ordnance Factories also supply arms and ammunition to Paramilitary Forces of the Ministry of Home Affairs (MHA), State Police, and Other Government Departments and also for Civil Indentors including export.

During 2010-11, Ordnance Factories manufactured 938 principal items against 881 items during 2009-10. The above items include anti tank guns, anti-aircraft guns, field guns, mortars, small arms, sporting arms including their ammunitions, bombs, rockets, projectiles, grenades, mines, demolition charges, depth charge, pyrotechnic stores, transport vehicles, optical and fire control instruments, bridges, assault boats, clothing and leather items, parachutes *etc.* These product ranges collectively constitute nearly 84 *per cent* of the gross value of production of the all the Ordnance Factories.

8.1.3 Manpower

The employees of the Ordnance Factories are classified as **(i)** "Officers" of senior supervisory level, **(ii)** "Non-Gazetted" (NGO) or "Non-Industrial" (NIEs) employees who are of junior supervisory level and the clerical establishment and **(iii)** "Industrial Employees" (IEs), who are engaged in the production and maintenance operations. The number of employees of various categories during the last five years is given in the table below:

Category of employees	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**
Gazetted Officers	3877	4036	3947	3481	8306
Percentage of gazetted officers to total manpower	3.47	3.77	3.84	3.50	8.40
NGO/NIEs	33783	32359	31105	30482	25302
Percentage of NGOs/NIEs to total manpower	30.20	30.22	30.27	30.67	25.58
IEs	74181	70666	67717	65411	65306
Percentage of IEs to total manpower	66.33	66.01	65.89	65.82	66.02
Total	**111841**	**107061**	**102769**	**99374**	**98914**

As evident from the foregoing table, there had been a steady decline in the manpower of Ordnance Factory organisation. When compared to 2006-07, the manpower strength decreased by 12 *per cent* in 2010-11. The decline in IEs and NGOs/NIEs was 12 *per cent* and 25 *per cent* respectively in 2010-11, as compared to 2006-07. The number of Gazetted Officers (comprising Group 'A' and Group 'B' officers) increased sharply by 4825 (139 *per cent*) in 2010-11.

8.1.4 Analysis of the performance of OFB

8.1.4.1 Revenue expenditure

The revenue expenditure[14] of the OFB, from 2006-07 to 2010-11 is given in the table below:

(₹ in crore)

Year	Total expenditure incurred by Ordnance Factories	Receipts against products supplied to Armed Forces	Other receipts and recoveries [15]	Total receipts	Net surplus of Ordnance Factories (5-2)
1	2	3	4	5	6
2006-07	6191.89	5147.77	1384.52	6532.29	340.40
2007-08	7125.63	5850.65	1464.12	7314.77	189.14
2008-09	9081.28	6123.38	1474.54	7597.92	(-) 1483.36
2009-10	10812.10	7531.08	1545.01	9076.09	(-) 1736.01
2010-11	10903.21	9824.99	1665.78	11490.77	587.56

The expenditure for the year 2010-11 increased negligibly (0.76 *per cent*) over that of 2009-10. The total receipts against issue of supplies to the Armed Forces, other indentors and miscellaneous, however, increased by 26.60 *per cent* from ₹ 9076.09 crore in 2009-10 to ₹ 11490.77 crore in 2010-11.

We observed that the Accounts Officers of the 13 Ordnance Factories, in violation of the instruction issued by the Chief Controller of Defence Accounts in October 2007, accepted advance issue vouchers submitted to them by the factories on the last day of financial year *viz.* 31 March 2011 and debited the Armed Forces/other establishment ₹ 2210.48 crore towards issue of stores to them despite the fact that these items were physically issued to them between April 2011 and August 2011 (See details in **Annexure-II**). Repeated Audit observations on the issue were overlooked. Further, Ordnance Factory Badmal prepared advance issue vouchers as of 31 March 2011 evidencing issue of stores valuing ₹ 388.54 crore to the Army. However, stores valuing ₹ 53.32 crore were not issued to the Army physically even up to 12 December 2011. Materials valuing ₹ 8.45 crore and labour valuing ₹ 1.77 crore, on the other hand, were not booked as expenditure for the year 2010-11 owing to non receipt of raw materials as of December 2011. Persistent deficiency in accounting the issues to different indentors had thus inflated the total receipts by ₹ 2210.48 crore enabling OFB to show a surplus during 2010-11. Incidentally, OFB claimed to have achieved a growth of 29 *per cent* in 2010-11 with reference to 2009-10. Considering the inflated issues of ₹ 2210.48 crore during 2010-11 the actual growth stood at 2.25 *per cent*.

[14] Source-Appropriation Accounts

[15] Other receipts and recoveries includes receipt on account of transfer of RR funds, sale of surplus/obsolete stores, issues to MHA including Police, Central and State Governments, Civil trade including Public Sector Undertaking, export and other miscellaneous receipts.

8.1.4.2 Trend of revenue expenditure

The trend of revenue expenditure during 2009-10 and 2010-11 was as indicated in the table below:

(₹ in crore)

Sl No	Revenue Head of Expenditure	Expenditure		Increase (+) /Decrease (-)	
		2009-10	**2010-11**	**Total**	***Per cent***
1	Direction and Administration	77.76	74.36	(-) 3.40	(-) 4.37
2	Research	32.08	39.95	(+) 7.87	(+) 24.53
3	Maintenance	19.79	20.86	(+) 1.07	(+) 5.41
4	Manufacture	3566.13	3502.60	(-) 63.53	(-) 1.78
5	Transportation	85.13	110.73	(+) 25.60	(+) 30.07
6	Stores	5965.16	5706.32	(-)258.84	(-) 4.34
7	Works	50.36	57.81	(+) 7.45	(+) 14.79
8	Renewal and Replacement	228.24	207.82	(-) 20.42	(-) 8.95
9	Transfer of Renewal and Replacement (RR) Fund	280	600	(+) 320	(+) 114.29
10	Other Expenditure	507.45	582.76	(+) 75.31	(+) 14.84
	Grand Total	**10811.77**	**10903.21**	**(+) 91.44**	**(+) 0.85**

As can be seen from the table above that –

- The total revenue expenditure during 2010-11 increased negligibly by ₹ 91.44 crore (0.85 *per cent*) over 2009-10. Analysis of trend of element-wise expenditure revealed that in 2010-11 expenditure on stores, manufacture and renewal/replacement had decreased by 4.34 *per cent*, 1.78 *per cent* and 8.95 *per cent* respectively as compared to 2009-10, while there was increase under the Head "Transfer to Renewal/Replacement Fund" (114.29 *per cent*) and "Other Expenditure" (14.84 *per cent*).

- At the beginning of the year, based on the budget estimate, certain sum of money is earmarked for parking in the "Renewal and Replacement Fund" under Minor Head No 797 (Transfer to RR Fund) of the Major Head 2079. When plant and machinery are procured, booking is made by making a credit to Minor Head No 797 of Major Head 2079 *viz.* Transfer from RR Fund with corresponding debit to Minor Head 106 of Major Head 2079 *viz.* Renewal and Replacement. We noticed that though a sum of ₹ 600 crore was allotted under the Head "Transfer to RR Fund", OFB drew only ₹ 207.94 crore from the fund to procure plant and machinery and the remaining ₹ 392.06 crore was parked in the Public Fund Account under Minor Head 102 of Major Head 8226 instead of crediting it back to the Consolidated Fund of India. As a result, the expenditure of OFB was overstated by ₹ 392.06 crore in the Appropriation Accounts for the year 2010-11. Justifying the excess transfer of funds, the OFB stated that the requirement of funds for modernization in coming years would be higher as, in line with the Ministry's directions, a major stride of modernization was on the anvil. This is not a valid argument since by OFB's own admission the amount to be transferred annually to the RR Fund should have been equal to the annual depreciation of plant and machinery and rough expenditure for annual replacement. Creation of outsized reserve

fund did not solve the basic problem of setting aside funds that match the lost economic value of the plant and machinery.

As per the instructions, Ordnance Factories are required to recover from Armed Forces the actual cost of issues. We noted 12 cases where three factories *viz.* Ordnance Factory Khamaria, Ordnance Factory Chanda and Ordnance Factory Badmal had under-recovered ₹ 55.30 crore due to acceptance of issue prices lower than the estimated cost. In 21 other cases, involving supply to the Armed Forces/other Government organisations the factories fixed issue price abnormally higher than the estimated cost resulting in earning an abnormal profit of ₹ 449.35 crore.

After considering the excess booking of issues of ₹ 2210.48 crore, excess transfer of ₹ 392.06 crore due to parking of funds in the Public Accounts of India and as well as abnormal profit of ₹ 394.05 crore earned due to faulty pricing mechanism, the total expenditure and total recoveries under various heads for the year 2010-11 worked out to ₹ 10511.15 crore and ₹ 8886.24 crore, respectively, instead of ₹ 10903.21 crore and ₹ 11490.77 crore as shown by OFB in the Appropriation Accounts for the year. Thus, while the OFB had obtained budgetary support of ₹ 1624.91 crore from the Government of India, it had reflected a contribution of ₹ 587.56 crore to the Consolidated Fund of India in their Appropriation Accounts (2010-11).

8.1.5 Cost of production

The following table indicates the group-wise/element-wise analysis of cost incurred as well as the percentages of various elements of cost to the total cost of production, during 2010-11.

(₹ in crore)

Sl No	Group of factories	Cost of production	Direct Store	Direct Expense	Direct Labour	Overhead Charges		
						Fixed Overhead	Variable Overhead	Total Overhead
1	Material & Components (M&C)	1838.25	822.18 **(44.72)**	71.70 **(3.90)**	221.26 **(12.04)**	488.59 **(26.58)**	234.52 **(12.76)**	723.11 **(39.34)**
2	Weapons, Vehicles and Equipment (WV&E)	3261.97	1795.48 **(55.04)**	20.92 **(0.64)**	352.97 **(10.82)**	783.80 **(24.03)**	308.80 **(9.47)**	1092.60 **(33.50)**
3	Ammunition and Explosive (A&E)	4907.29	3402.55 **(69.34)**	28.26 **(0.58)**	348.09 **(7.09)**	778.45 **(15.86)**	349.95 **(7.13)**	1128.40 **(22.99)**
4	Armoured Vehicles (AV)	3149.52	2351.50 **(74.66)**	15.06 **(0.48)**	158.84 **(5.04)**	487.28 **(15.48)**	136.84 **(4.34)**	624.12 **(19.82)**
5	Ordnance Equipment (OE)	855.08	338.15 **(39.55)**	0.36 **(0.04)**	237.25 **(27.75)**	210.57 **(24.62)**	68.75 **(8.04)**	279.32 **(32.67)**
	Total	14012.11	8709.85 **(62.16)**	136.30 **(0.97)**	1318.41 **(9.41)**	2748.69 **(19.62)**	1098.86 **(7.84)**	3847.55 **(27.46)**

Note: Figures in the bracket represent the percentage of particular element of cost to total cost of production

As can be seen from the table above, amongst all the five group of factories A&E group of factories registered the highest cost of production of ₹ 4907.29 crore. The OE group of factories, on the other hand, registered the lowest cost of production of ₹ 855.08 crore. The average overhead charge of OFB across all groups was 27.46 *per cent* of cost of production. The M&C, WV&E and OE group of factories had exceeded the average overhead cost, while in the A&E and AV group of factories it was below the average.

8.1.6 High Supervision and Indirect Labour Charges

The details of direct/indirect labour charges, supervision charges and percentage of indirect labour to direct labour as well as percentage of supervision charges to direct labour charges are given in the **Annexure -III**.

It can be seen that in all groups, except for OE Group, the supervision charges as a percentage of the direct labour charges during 2010-11 were quite high. For every ₹ 1.00 spent on direct labour, the supervision charges ranged between ₹ 1.18 and ₹ 1.40. Since the number of Group A and B officers whose remuneration forms a major element of supervision charges were only 8306 and as the Industrial Employees whose remuneration forms a significant factor of direct labour were 65,306 in number, the correlation of supervision charges to direct labour cost was out of pattern. In any case, the supervision charges to the direct labour charges as a percentage need to be brought down to a reasonable level.

8.1.7 Production profile

The production programme for ammunition, weapons and vehicles, materials and components and armoured vehicles was fixed for one year, which in the case of equipment items has been fixed for four years. The details of demand, targets fixed and shortfall in achievement of the targets during the last five years are shown in the table below:

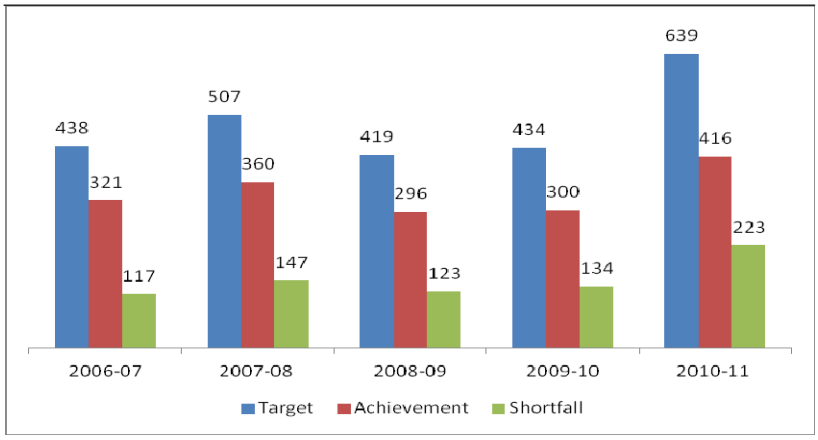
Year	Number of items for which demands existed	Number of items for which target fixed	Number of items manufactured as per target	Number of items for which target were not achieved	Percentage of shortfall with reference to target fixed
2006-07	552	438	321	117	26.71
2007-08	628	507	360	147	28.99
2008-09	419	419	296	123	29.36
2009-10	605	434	300	134	30.88
2010-11	1016	639	416	223	34.90

The table above indicates that Ordnance Factories did not meet their target in any of these five years. During 2010-11, demand for items had increased by 68 *per cent* to 1016 items over the previous year. However, targets were fixed

mutually only in respect of 639 items. Even so, there was a shortfall of 35 *per cent* in achieving the target.

Failure of OFB to achieve the targets on all the items for which the demand existed foreclosed the possibility of offloading fixed cost burden to these items as well as escalated the cost of other produced items due to excessive apportionment of overheads.

Shortfall in production



8.1.8 Capacity utilisation

The table below indicates the extent of utilization of the machine hour capacity during the last five years.

(Capacity utilization in terms of Machine Hours)

(Unit in lakh hours)

Year	Machine hours available	Machine hours utilized	Percentage of Capacity utilization
2006-07	1472	1120	76.08
2007-08	1351	1147	84.90
2008-09	1696	1294	76.30
2009-10	1839	1261	68.57
2010-11	1830	1311	71.64
Total	**8188**	**6133**	**74.90**

The percentage of utilization of machine by the Ordnance Factories had improved to 71.64 in 2010-11 as compared to 68.57 during 2009-10. The capacity utilization, however, did not reach the higher water mark of 84.90 *per cent* achieved during 2007-08. Necessary action may be initiated by OFB to ensure optimum utilization of machine hours available at the Ordnance Factories.

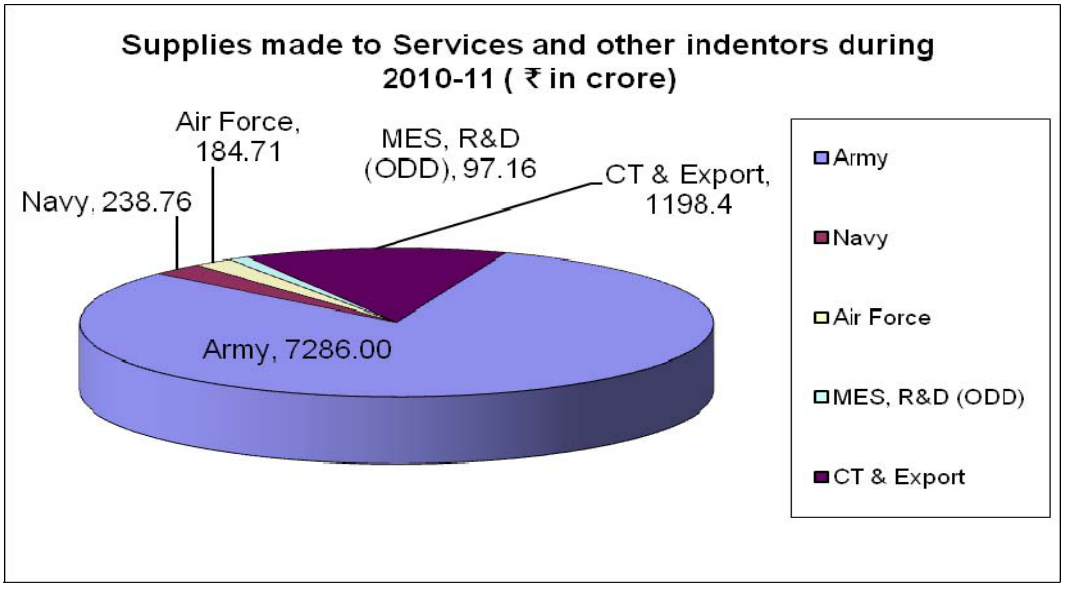
8.1.9 Issue to users (Indentors)

The indentor-wise value of issues during the last five years, was as under:

(₹ in crore)

Name of Indentors	2006-07	2007-08	2008-09	2009-10	2010-11	Issues in 2010-11 excl. Spill over
Army	4535.43	5252.15	5557.66	7054.12	9225.15	7286.00
Navy	130.76	119.39	179.41	124.40	243.98	238.76
Air Force	208.09	239.53	221.02	208.20	219.58	184.71
MES, Research and Development (Other Defence Department - ODD)	143.08	145.63	124.67	116.40	169.04	97.16
Total Defence	**5017.36**	**5756.70**	**6082.76**	**7503.13**	**9857.20**	**7806.63**
Civil Trade and Export	1179.98	1181.11	1146.55	1212.13	1357.76	1198.40
Total issues	**6197.34**	**6937.81**	**7229.31**	**8715.25**	**11214.96**	**9005.03**

Though the total value of issues (₹11214.96 crore) during 2010-11 increased by 26.67 *per cent* as compared to the previous year, the actual physical issues to these indentors during 2010-11 (₹ 9005.03 crore) increased by a mere 3.32 *per cent*. Nevertheless, the Army continued to remain the major recipient of the products of the Ordnance Factories, accounting for nearly 80.91 *per cent* of the total issues during the year 2010-11, as evident from the chart below.



8.1.10 Civil trade

With the objective of optimal utilization of spare capacities and to lessen dependence on budgetary support, the Ordnance Factories commenced civil trade since July 1986. The turn-over from civil trade (excluding supplies to the MHA and State Police Departments) during 2006-2011 was as under:

(₹ in crore)

Year	Number of factories involved	Target	Achievement	Percentage of achievement
2006-07	33	279.16	298.56	106.95
2007-08	32	335.01	359.56	107.33
2008-09	39	351.12	329.30	93.79
2009-10	27	374.23	425.18	113.61
2010-11	27	464.50	466.86	100.50

Though the value of issues to the civil trade increased from ₹ 425.18 crore in 2009-10 to ₹ 466.86 crore in 2010-11, the achievement was lower by 13.11 *per cent* in 2010-11 over 2009-10.

8.1.11 Export

The following table shows the achievement with reference to target in export from 2006-07 to 2010-11:

(₹ in crore)

Year	Factories involved	Target	Achievement	Shortfall (-) /Excess (+)	Percentage of shortfall (-) / Excess (+) w.r.t. target
2006-07	13	25.00	15.12	(-) 9.88	(-) 39.52
2007-08	10	30.00	27.44	(-) 2.56	(-) 8.53
2008-09	11	35.00	41.07	(+) 6.07	(+)17.34
2009-10	13	41.30	12.30	(-) 29.00	(-) 70.22
2010-11	8	44.00	35.70	(-) 8.30	(-) 18.86

Though the export marginally increased during 2010-11 over the previous year, it was still short of the target by 18.86 *per cent.* The OFB attributed (November 2011) the shortfall mainly to non-dispatch of ammunition valuing ₹ 6.68 crore to a foreign country due to non-availability of vessel. As on 31 March 2011, amount due to be realized from the Ministry of External Affairs against supplies to Foreign Government was ₹ 5.93 crore. Expeditious action needs to be taken by the OFB to recover the amount.

8.1.12 Inventory management

The position of total inventory holdings at the Ordnance Factories as a whole during 2006-07 to 2010-11 was as under:

(₹ in crore)

Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	Percentage of increase /decrease during 2010-11 in comparison to previous year
1.	Working stock						
a.	Active	1734.00	2160.00	2354.00	2732.00	4093.00	49.82
b.	Non-moving	256.00	333.00	322.00	297.00	346.00	16.50
c.	Slow moving	194.00	211.00	287.00	507.00	574.00	13.21
	Total Working Stock	**2184.00**	**2704.00**	**2963.00**	**3536.00**	**5013.00**	**41.77**
2	Waste & Obsolete	14.00	14.00	26.00	39.00	20.00	(-)48.72
3.	Surplus/ Scrap	80.00	81.00	68.00	64.00	68.00	6.25
4.	Maintenance stores	87.00	79.00	73.00	73.00	76.00	4.11
	Total	**2365.00**	**2878.00**	**3130.00**	**3712.00**	**5177.00**	**39.47**
5.	Average holdings in terms of number of days' consumption	169	160	149	177	199	12.43
6.	Percentage of total slow-moving and non-moving stock to total working stock	20.60	20.12	20.55	22.74	18.35	(-) 19.30

Average inventory holding in terms of days' consumption had increased by 12.43 *per cent* in 2010-11 as compared to 2009-10. This was attributed to OFB's decision to initiate procurement action for input material against indents for three years' requirement (two years plus 50 *per cent* option clause) with price variation clause and staggered delivery schedule conforming to budget allotment and shelf life of the stores. However, the staggered delivery mechanism was not properly implemented by at least five factories (Opto Electronic Factory Dehra Dun, Heavy Vehicles Factory Avadi, Ordnance Factory Dehra Dun, Ordnance Factory Kanpur, Machine Tool Prototype Factory Ambarnath) leading to excess stock holding in these factories as of 31 March 2011 as detailed in **Annexure IV.** The factories need to review the excess stock holding and strengthen inventory management to avoid blocking up of funds.

8.1.12.1 Finished Stock-holding

Position of Finished stock-holding (completed articles and components) during the last five years as extracted from the Review of Annual Accounts of the Ordnance Factory Organisation for the year 2010-11 as prepared by the Principal Controller of Accounts (Fys) Kolkata was as under:

(₹ in crore)

Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
Holding of Finished articles	125.11	79.00	506.00	166.59	112.62
Total cost of production	7957.53	9312.61	10610.40	11817.89	14012.12
Holding of finished stock in terms of number of days' issue	5	3	17	5	3
Holding in terms of percentage of total cost of production	1.57	0.85	4.77	1.41	0.80
Finished component holding	465.45	617.00	458.00	1015.04	1101.73
Holding of finished components in terms of number of days' consumption	52	44	38	85	65
Holding of finished components in terms of percentage of total cost of production	5.85	6.63	4.32	8.59	7.86

Though as on 31 March 2011 there was decrease in the value of finished (completed) articles by 32.40 *per cent*, the value of finished components in hand increased by 8.54 *per cent* in 2010-11 when compared with 2009-10. Immediate action needs to be taken for early utilization of huge finished components. We observed that actual cost of finished components consumed by the Ordnance Factories during the year 2010-11 had not been reflected in the accounts. Only a footnote under the Annual Production Account for the year 2010-11 indicated that the cost of finished components consumed in production was ₹ 6346.38 crore. We recommend that OFB should put in place a system to reflect the cost of finished components consumed in production in their Consolidated Annual Accounts.

8.1.13 Work-in-progress

The General Manager of an Ordnance Factory authorizes a production shop to manufacture an item of requisite quantity by issue of a warrant whose normal life is six months. Unfinished items pertaining to different warrants lying at the shop floor constituted the work-in-progress. The value of the work-in-progress during the last five years was as under:

(₹ in crore)

As on 31 March	Value of work-in-progress
2007	1179.31
2008	1265.00
2009	1961.82
2010	2121.75
2011	2297.06

The total value of work-in-progress as on 31 March 2011 increased by 8.26 *per cent* in comparison to 2009-10. As on 31 March 2011, a total of 27525 warrants were outstanding, of which 21957 warrants pertained to 2010-11 and the balance 5568 pertained to the year prior to 2010-11, the oldest being of 1993-94. The position of outstanding warrants was predominant in Heavy

Vehicles Factory Avadi (4115 warrants valuing ₹ 502.92 crore), Ordnance Factory Trichy (3661 warrants valuing ₹ 19.20 crore), Ordnance Factory Medak (3042 warrants valuing ₹ 255.33 crore), Opto Electronic Factory Dehra Dun (2865 warrants valuing ₹ 80.69 crore) and Ordnance Factory Dehra Dun (1965 warrants valuing ₹ 16.34 crore). Necessary action needs to be taken by OFB for closure of warrants outstanding for more than six months particularly those pertaining to the period 1993-94 to 2007-08.

8.1.14 Losses

The table below depicts losses written off during the last five years ending 31 March 2011:

(₹ in lakh)

Sl. No	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1	Overpayment of pay & allowances and claims abandoned	1.21	Nil	0.22	Nil	Nil
2	Losses due to theft, fraud or neglect	0.55	29.11	0.28	0.17	4.97
3	Losses due to deficiencies in actual balance not caused by theft, fraud or neglect	4.65	Nil	Nil	Nil	Nil
4	Losses in transit	Nil	0.16	6.46	16.85	21.38
5	Other causes (*e.g.* conditioning of stores not caused by defective storage, stores scrapped due to obsolescence, *etc.)*	0.34	19.58	180.41	1.07	122.64
6	Defective storage loss	0.45	Nil	Nil	Nil	Nil
7	Losses not pertaining to stock	883.70	333.90	73.75	233.19	518.20
	Total	**890.90**	**382.75**	**261.12**	**251.28**	**667.19**

During 2010-11 the losses written off had increased by ₹ 415.91 lakh (166 *per cent*) compared to the previous year.

As of June 2011, 247 cases of losses amounting to ₹ 110.43 crore were awaiting regularization by the Ministry of Defence and the oldest items pertain to the year 1964-65. Effective steps need to be taken by OFB and the Ministry to regularize the losses at the earliest besides taking effective remedial action to avoid such losses.

The case was referred to the Ministry of Defence in June 2012; their reply was awaited as of July 2012.

NOTE : The figures incorporated in this paragraph are mainly based on the figures of the Consolidated Annual Accounts of Ordnance and Ordnance Equipment Factories in India finalised by Principal Controller of Accounts (Fys.), Kolkata for the year 2010-11, documents maintained and information supplied by Principal Controller of Accounts (Fys.), Kolkata as well as Ordnance Factory Board, Kolkata

8.2 Delay in production and issue of rockets for Pinaka Rocket Launcher System by Ordnance Factories

The project for production of rockets for Pinaka multi-barrel rocket launcher system is way behind the schedule. The quality related problems in a production process resulted in a loss of 407 rockets valuing ₹ 44.51 crore and propellant valuing ₹ 4.25 crore. Repeated failures and stoppage of production of the rockets for a certain period, led to overall delay in operationalisation of the Army units as per induction plan.

8.2.1 Introduction

Pinaka is a multi-barrel rocket launcher system developed for the Indian Army by Defence Research and Development Organisation (DRDO). The main laboratories involved in its development were Armament Research and Development Establishment (ARDE) and High Energy Materials Research Laboratory (HEMRL). The delay in development of Pinaka, which was sanctioned by the Ministry in 1986 with the objective of inducting it into the Army, in a phased manner from 1994 onwards, and the ramifications of the delay were commented upon in Report No. 7 of 1999 (Paragraph 23) of the Comptroller and Auditor General of India. The Ministry of Defence, in March 2006, *i.e.* 20 years after the project was sanctioned, finally entrusted the production of various components of the system to different production agencies that included two private sector firms[16] (rocket launchers), Bharat Earth Movers Limited, a public sector undertaking (chassis for support vehicles), and the Ordnance Factory Board (OFB) for rockets.

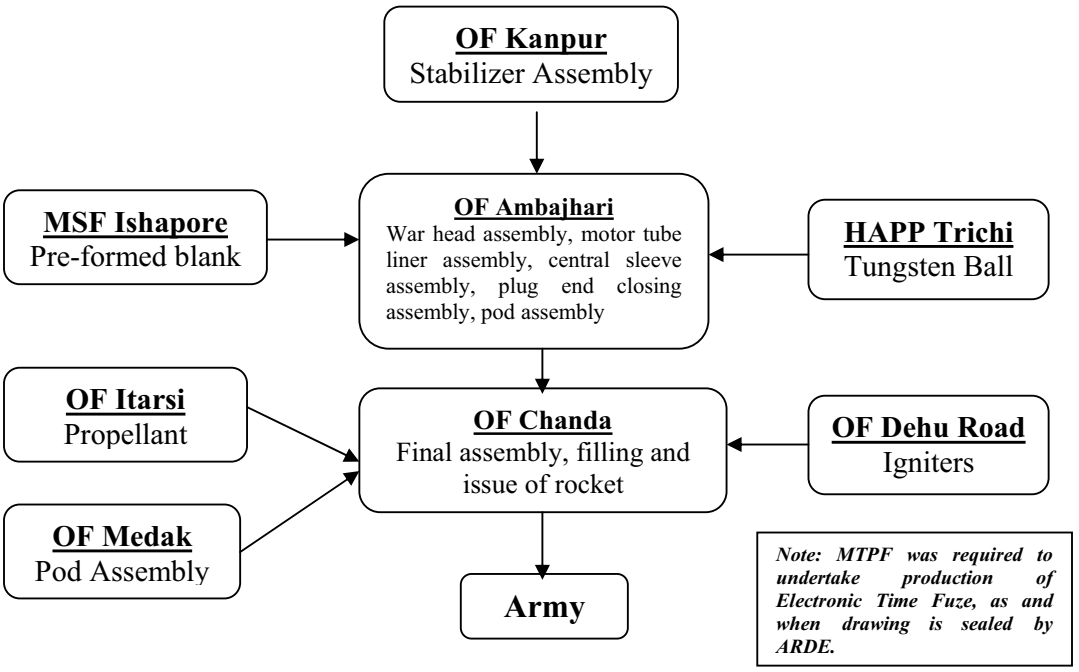
The order on OFB was placed by the Army, in November that year, who were required to supply 4752 rockets at a total cost of ₹ 767.28 crore during the period 2007-12. OFB, in turn, assigned the task of producing the rockets to nine[17] Ordnance Factories (OF).

As per the scope of the project, OF Ambajhari was required to manufacture various rocket components/sub-assemblies and issue the empty hardware of the rocket to OF Chanda. OF Kanpur was tasked to manufacture stabilizer assembly for its issue to OF Ambajhari, while OF Medak was assigned manufacture and issue of pod assembly to OF Chanda. Other designated sister factories were also required to supply components to facilitate the manufacture and issue of the rockets.

[16] M/s Larsen and Toubro Limited, M/s Tata Power Company Limited

[17] Heavy Alloy Penetrator Project (HAPP) Trichi, OF Kanpur, Metal and Steel Factory (MSF) Ishapore, OF Ambajhari, Machine Tool Prototype Factory(MTPF) Ambarnath, OF Itarsi, OF Medak, OF Dehu Road and OF Chanda

Flow chart of inter-factory supplies of components/assemblies and final issue of rockets



The factories were required to commence production in the existing facilities, although facilities at three factories, *viz.* OF Ambajhari, OF Kanpur and OF Medak required to be augmented.

Our audit, during April-July 2011, of the production and issue of rockets by OF Chanda and sourcing the components and assemblies from the designated sister factories, showed that the progress had not been commensurate with the targets. Consequently, training of troops and ability of the Army to maintain war wastage reserve had been adversely impacted.

8.2.2 Execution of the project

8.2.2.1 Project sanction

OFB, based on an anticipatory directive (November 2003) of the Ministry, submitted, in January 2006, a detailed project report (DPR) for augmentation of facilities in three Ordnance Factories *viz.* OF Ambajhari, OF Kanpur and OF Medak for manufacture of 1000 rockets *per annum*. The Ministry approved, in May 2007, the DPR and conveyed the sanction for creation of various facilities in the three factories at a cost of ₹ 106.59 crore. Though the DPR had stipulated completion of the project by May 2010, the sanction did not stipulate any timeframe for completion of the project.

OFB attributed (July 2012) prolonged time of more than three years taken in preparing the project report to the efforts needed for identifying the requirements, locating the sources for raw materials and translating the

manufacturing process in terms of plants and machinery. However, considering the commitment of OFB to supply 4752 rockets to the Army during the period 2007-12, the time taken by the Ministry for according approval to the project was also long.

8.2.2.2 Delay in execution of civil works

As planned in DPR, the civil works[18] to create production and service facilities at OF Ambajhari, were to be completed by May 2009. However, the administrative approval (AA) for the works issued by OFB only in March 2009 stipulated their completion by March 2012. As of July 2012, the buildings work under execution by the Military Engineer Services, had progressed to 90 *per cent*. The delay in sanction and execution of civil works was due to revision in the scope of works by the factory which was neither envisaged in the DPR nor provided for in the Government sanction. Consequently, the AA required to be issued by OFB was delayed. This would indicate that despite taking an inordinately long time in preparing the DPR, the scope of civil works had not been outlined adequately.

OFB stated that OF Ambajhari had ventured in the field of manufacturing rockets of this size with composite material for the first time and, therefore, requirements that had initially been projected based on the available information and experience had to be modified in due course of time. It added that about 90 *per cent* work had been completed till February 2012 and the balance work would be completed by March 2012. While recognizing that the Ordnance Factories faced a steep learning curve, the OFB's assertion about the possibility of works being completed soon is not factually correct. As per its own Half-yearly Progress Report of April 2012, the revised schedule for completion of balance works was the second quarter of 2012-13.

8.2.2.3 Delays in procurement of plant and machinery

The DPR envisaged procurement and commissioning of machinery in the three factories by February 2010. OFB stated (July 2012) that four machines for OF Ambajhari and three machines for OF Kanpur were still under advanced stage of procurement. The procurement and commissioning of the required machines was thus behind the schedule by over two years.

The delay in procurement of required machines prompted OF Ambajhari, OF Kanpur and OF Medak to source the items and services, such as empty RHE[19] warhead, conversion of Tungsten Alloy to PF[20] warhead, conversion of preformed blank into motor tube, direct motor tube, motor tube liner assembly, plug end closing assembly, centre sleeve assembly, nozzle rear moulding, launcher tube assembly, wire harnessing of pod, *etc.* from trade as discussed in paragraph 8.2.3.2 below. This could have been avoided by timely procurement/ commissioning of the machines.

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[18] Composite, Tube manufacturing, Precision manufacturing and Assembly shops and Service facilities like Air-conditioning, Cold storage, Crane, Water tank, Fire hydrant.
[19] Reduced High Explosive
[20] Pre Fragmented

8.2.2.4 Belated issue of sanction for ancillary facilities

OFB had originally planned that propellant would be manufactured at OF Itarsi and filling/assembly and issue of the rockets would be done in the existing facilities at OF Chanda. However, during the production stage, OFB and the factories were faced with non-availability of a special chemical *viz*. Ammonium Perchlorate needed for propellant as also lack of adequate storage facilities for the rockets at OF Chanda. In order to overcome these problems, OFB, in December 2010 and July 2011, approved two proposals, one for procurement of the chemical plant costing ₹ 26.48 crore and its commissioning at High Explosive Factory (HEF) Kirkee; and another for construction of storage shed at a cost of ₹ 4.60 crore at OF Chanda. However, while construction of a storage shed was expected to be completed by December 2012, the chemical plant was ordered only in April 2012.

OFB stated that the creation of in-house facility for production of Ammonium Perchlorate was necessary owing to non-materialisation of source development. It added that additional storage facility was needed at OF Chanda for uninterrupted production of the rockets.

The reply indicates that the project formulation was deficient to the extent that the possibilities of sourcing Ammonium Perchlorate from the market had not been properly assessed. Similarly, the extent of space requirement for storage of rockets should have been properly assessed upfront. Deficient planning thus not only caused delay in completion of the project but also hampered smooth flow of production of propellant and storage of finished rockets as discussed in subsequent paragraphs.

8.2.3 Production of rockets

After it received Army's order (November 2006) for 4752 rockets (4080 PF and 672 RHE), OFB tasked (February 2007) OF Chanda, which was responsible for filling and final assembly of rockets to supply rockets to the Army, in batches from 2007-08 to 2011-12. Simultaneously, OFB allotted year-wise production targets for all the major components and assemblies to the factories concerned. We noticed several bottlenecks in production and despatch of components and assemblies which disrupted inter-factory supply chain and resulted in slippages in production and consequential delay in issue of the rockets by OF Chanda, as discussed below:

8.2.3.1 Production and issue of rockets to Army

The table below indicates the target and issue of RHE and PF rockets to Army by OF Chanda during 2007-08 to 2010-11.

Table showing achievements in issue of targeted supply of rockets

Year	Rockets RHE		Rockets PF	
	Target	Issue	Target	Issue
2007-08	240	306	762	Nil
2008-09	204	Nil	816	101
2009-10	162	160	864	84
2010-11	100	204	900	706
Total	**706**	**670**	**3342**	**891**

The table above shows that the planned annual production of 1000 rockets was yet to be achieved. OF Chanda could not supply a single PF rocket in 2007-08 and RHE rocket in 2008-09. This was primarily due to the short receipt of hardware of PF rocket from OF Ambajhari, igniters from OF Dehu Road and propellants from OF Itarsi along with quality problems. While accepting the facts, OFB attributed (July 2012) the shortfall in issue of the rockets to change of design by ARDE (for 2008-09 and 2009-10) and non-receipt of required hardware empties from sister factories for 2010-11.

8.2.3.2 Production and issue of components and assemblies

The following table indicates the details of major components and assemblies supplied by different Ordnance Factories during 2007-08 to 2010-11 and reasons for short supplies by the feeder factories.

Table showing shortfall in supplies by sister factories
(Quantity in numbers, except where otherwise mentioned)

Name of item and Factory involved	Consignee	Target	Issue	Reasons for short supplies
A. Feeder factories under the project				
Stabilizer assembly (OF Kanpur)	OF Ambajhari	3546	2024	Delayed receipt and commissioning of machines and stoppage of production in 2009-10 as per directive of OFB.
Rocket PF (OF Ambajhari)	OF Chanda	2808	1314	Delayed and short supply of stabilizer assembly and pre-formed blank from OF Kanpur and MSF Ishapore.
Pod assembly (OF Ambajhari)	OF Chanda	359	269	Non-availability of launching tube and suspension of production by OFB in 2009-10.
Pod assembly (OF Medak)	OF Chanda	185	147	Slippages in delivery (2007-08) and non- supply in 2009-10. Supply was put on hold in June 2010 due to non-availability of space at OF Chanda.
B. Other feeder factories				
Pre-formed blank (MSF Ishapore)	OF Ambajhari	4088	3342	Limitation in existing capacity for pre-formed blank and short-closure/ cancellation of Inter-Factory Demands (IFD) by OF Ambajhari due to deviation from the specified hardness of the item.
Tungsten balls (HAPP Trichi)	OF Ambajhari	1,87,859 kg	82,708 kg	Inadequacy in existing infrastructure, delayed delivery against two IFDs and issues restricted as per delivery period of third IFD of OF Ambajhari.
Igniters (OF Dehu Road)	OF Chanda	4702	2346	Delayed and short supply of main components *viz.* squib from AF Kirkee and cup and lid from trade arising out of frequent modifications in the design.
Propellant (OF Itarsi)	OF Chanda	2736 sets	1776 sets	Non-availability and quality problems relating to one essential ingredient of propellant *viz.* Mat-O-Bond.

The shortfall in supplies of important components and assemblies by the feeder factories (OF Kanpur, MSF Ishapore and HAPP Trichi) adversely impacted production and issue of the rockets' hardware at OF Ambajhari. Apart from this, short supply of propellant, igniters and pod assemblies by other feeder factories (OF Itarsi, OF Dehu Road and OF Medak/OF Ambajhari) led to shortfall in production and issue of the rockets by OF Chanda to Army, as brought out in the above table.

Owing to delayed implementation of the project, faulty production planning for inter-factory issue of items and quality problems of the products supplied by other feeder factories, OF Ambajhari, OF Kanpur and OF Medak were constrained to procure major components and assemblies valuing ₹ 89.24 crore during April 2008 to June 2011 from trade to sustain manufacture of the hardware of the rocket.

OFB, in July 2012, stated that only 60 *per cent* of the production of composite material items and flow formed tubes was planned to be produced in-house in OF Ambajhari and, therefore, dependence on trade was unavoidable. It added that since manufacturing process was contingent on completion of various infrastructure under the sanctioned project, production could not be started till all the facilities were available. Though OF Ambajhari had placed most of the supply orders for the plant and machinery but due to certain reasons some of the plant and machinery could not be positioned as, after receiving of the supply orders most of firms were unable to execute the orders. This ultimately forced OF Ambajhari to initiate re-tendering for many actions. OFB averred that full in-house production would be started at OF Ambajhari once all facilities are created.

Regarding the bottlenecks in inter-factory supplies and outsourcing of components, OFB stated that:

- non-availability of specified graphite rod indigenously had hampered the production of stabilizer assembly at OF Kanpur;
- establishment of manufacturing process of tungsten ball was a big challenge and the same had been overcome through trial and error at HAPP Trichi;
- the problem of hardness of pre-formed blank had been overcome after its modification by ARDE, consequently, the productivity at MSF Ishapore had increased manifold;
- frequent changes in design of cup and lid by ARDE had a bearing on the supply from trade which in turn restricted supply of igniters by OF Dehu Road to OF Chanda.

The OFB's reply confirms that delayed implementation of the project coupled with frequent changes of design had given a setback to early in-house production of the required components and assemblies and forced the Ordnance Factories to remain dependent on trade.

8.2.4 Quality problems

The Ordnance Factories encountered problems in the production of the components and assemblies ending up in rejection of the components produced, which was attributed mainly to the design deficiencies, as mentioned below:

8.2.4.1 Quality problems in warhead, motor tube and propulsion unit

OF Chanda, in 2008-09, encountered problems like lower weight and unbalanced empty warheads (RHE) supplied by OF Ambajhari. Besides, 50 motor tube and 45 propulsion unit (valuing ₹ 3.69 crore) supplied by OF Ambajhari were kept aside/rejected by Senior Quality Assurance Establishment (SQAE) Chanda during 2010-11, on account of rusting, corrosion/black spots resulting in non-achievement of production target of PF rocket.

OFB stated (July 2012) that the problem of RHE warhead had been sorted out and added that the problems of the propulsion unit were not due to manufacturing defects, but due to design problem that was under investigation by ARDE.

8.2.4.2 Quality problems in propellant

OF Itarsi manufactured 240 sets of the propellant during 2008-09 and supplied 108 sets to OF Chanda. Twelve sets were expended in proof testing. After firing, the pressure versus time profile relating to the burning rate as well as the pressure of the propellant, were not found as per expected pattern. This low mechanical property was attributed to use of a chemical called Methyl Aziridinyl Phosphine Oxide (MAPO) with inferior properties, particularly in regard to purity. Hence, HEMRL suggested discontinuance of further processing of the propellant. Subsequently, from 2009-10 onwards OF Itarsi manufactured and issued the propellant using 'MAPO' of specified purity. As of June 2012, 120 sets of propellant of inferior quality valuing ₹ 4.25 crore were lying at OF Itarsi since March 2009, without any prospect of their utilisation in production of the rocket.

While accepting the above facts, OFB stated that after taking many improvement measures, including design and process changes, the production of the propellant had since (July 2012) been stabilised. The reply was silent on the circumstances in which OF Itarsi had produced propellants with MAPO of inferior quality.

8.2.4.3 Quality problems in igniters

OF Dehu Road, during 2008-09, encountered quality related problems like detachment of phenolic moulding portion from the cups, lower hardness, *etc.* in manufacture of igniters. Based on the recommendation of the Deviation Management Board, 110 igniters were accepted under deviation, while the

Board advised OF Dehu Road to propose a new design of igniters for approval of HEMRL. As per the proposed new design, the factory expected to salvage 835 empty igniters and rectify 158 rejected igniters, which were manufactured as per the earlier design.

OFB stated (July 2012) that the quality problems were encountered due to design deficiency and that design modification was inherent in the process of establishment of a new product, based on its performance during end use.

Evidently, the production process has not stabilised even after lapse of five years since the commencement of production in May 2007.

8.2.5 Consignee end rejection

OF Chanda, due to limited storage facility, supplied to the Army 306 RHE rockets in 2007-08 and 101 PF rockets in 2008-09, at an aggregate cost of ₹ 61.01 crore on Red Card issue basis *i.e.* in anticipation of proof clearance. However, in December 2008, an accident occurred during proof firing of the rocket launcher system at Pokhran Field Firing Range (PFFR). The accident led to damage of rocket launcher, pods and navigation system.

The Failure Analysis Board (FAB) constituted by DRDO attributed (April 2009) the following factors to the accident:

- low mechanical properties of propellant along with the existence of cracks, voids and petal damage;
- inadequate inspection and quality assurance permitting rockets with poor quality of propellant to reach Army depot;
- insufficient infrastructure at OF Itarsi for manufacture and static testing of propellant and inadequate storage conditions of propellant grains; and
- unreliability and variation in raw material quality used in propellant.

The FAB declared all the 407 rockets unfit for use and recommended change of propellant for both type of rockets as well as replacement of the entire propulsion unit for RHE rocket. The components of RHE rockets were under retrieval as of September 2011. Another lot of 84 PF rockets issued to Army on 'Red card[21]' during 2009-10 suffered a setback as one rocket ranged short by 5.5 km during the dynamic proof testing in December 2009. Hence, further production of PF rocket was suspended in 2009-10. OF Chanda received back 342 rockets (258 RHE and 84 PF) from the Army. Of these 65 PF rockets were re-issued to the Army after rectification.

OFB stated that these lots of rockets had been supplied to the Army after satisfactory proof at PFFR and after a clear inspection note issued by ARDE.

The reply must be seen in the light of the fact that the FAB had attributed the accident to propulsion system as also inadequate inspection and quality

[21] Red card issue is made in anticipation of proof testing

assurance coverage. OF Chanda had, clearly, failed to ensure adequate inspection of the inputs received from the sister factories before assembling the rockets. Also OF Itarsi, which supplied the propellants, had committed lapses by using MAPO which was not of specified purity, in the manufacture of the propellant. Though HEMRL had frozen MAPO specification to include 'Imine' content of 92 *per cent* (minimum) during development, OF Itarsi had procured the chemical without ensuring the minimum 92 *per cent* 'Imine' content and used it in the production of propellant during 2007-08 and 2008-09.

OFB stated that each mix sample had been tested for specified requirement and all the lots issued in 2007-08 and 2008-09 had passed in mechanical properties and met the specification requirement. It asserted that at no stage deviated material had been used in the manufacturing process and that the representative of the Director General of Quality Assurance had been associated with OF Itarsi during the production of the propellant. Also propellants were issued after acceptance testing by HEMRL. However, suitable action to ensure the minimum 92 *per cent* Imine content in MAPO was taken only after January 2009. This admission of the OFB, confirms the failure of OF Itarsi in the earlier periods to ensure minimum 92 *per cent* Imine content in MAPO, which had contributed to the low mechanical properties of the propellant that resulted in the accident at PFFR.

8.2.6 Loss due to rejection of rockets

Considering OF Chanda's assessment of a possible saving of ₹ 16.50 crore in retrieval of the components of the unserviceable rockets, net loss in the production of the rockets worked out to at least ₹ 44.51 crore. Besides, failure of OF Itarsi to manufacture propellant with specified quality of chemicals led to rejection of 120 sets propellant valuing ₹ 4.25 crore during 2008-09.

8.2.7 Operational impact

The Integrated HQ of the Ministry of Defence (Army) stated in May 2012 that the delay in delivery of the rockets at the desired rate of supply had affected the training of troops and that the war wastage reserve could not be maintained. Earlier, in February 2010, Director General of Artillery, expressed concern over repeated failure and stoppage of production of Pinaka rocket leading to overall delay in operationalisation of the Army units as per induction plan. DG of Artillery also requested the Secretary, Defence Production that all checks, tests and procedures as per new Master Quality Assurance Plan prepared after the accidents, must be strictly enforced to ensure high quality production. In February 2011, Director General of Ordnance Services also requested OFB to despatch only proof-passed Pinaka rockets to ammunition depots.

OFB stated in July 2012 that Pinaka rocket is entirely a new ammunition involving various state-of-the-art technologies like composite manufacturing, flow forming, precision machining, *etc.* with which Ordnance Factories were not familiar. OFB added that ARDE had changed the design two times and considerable time had lapsed in validation of designs. It, however, added that major design changes do happen mid-course in DRDO developed designs and as a result, gestation period of design maturity-cum-bulk production became

longer. There had been major design changes in propulsion system by ARDE/HEMRL during 2008-10, which had delayed the project on which OFB had no control.

Since the project had been taken up by OFB after complete transfer/ assimilation of the specifications and technology, fully aware of the fact that OFB was taking up an entirely new project, abundant caution was required in the Ordnance Factories to strictly adhere to the specifications. The acceptance of MAPO without ensuring the minimum Imine content was clearly an avoidable lapse which had led to the accident and loss. OFB was entirely responsible for this, while design changes by DRDO also could have contributed to the delays.

8.2.8 Conclusion

Against the Army's indent for supply of 4752 rockets during the period 2007-12, OF Chanda had supplied only 1561 rockets till March 2011, that too without proof clearance. During proof firing of the rockets in December 2008, an accident occurred. Analysis of the reasons for the accident led to declaration of 407 rockets as unserviceable due to quality problems of the propellant, and net loss of rockets valuing ₹ 44.51 crore and propellant valuing ₹ 4.25 crore. Repeated failure and stoppage of production of Pinaka rocket for a certain period led to overall delay in operationalisation of the Army units as per induction plan. The delay in delivery of the rockets at the desired rate of supply had also affected the training of troops and the war wastage reserve could not be maintained.

Three factories had to source major components/assemblies valuing ₹ 89.24 crore from April 2008 to June 2011 from trade, due to delay in creation of facilities.

What is disquieting is that the project that was initiated about two-and-a-half decades back continues to be burdened by design deficiencies which hampered the production and supply of rockets to the Army.

The Ministry/OFB may urgently review the tardy progress in implementation of the ongoing Pinaka project and take proactive action for early completion of the project.

The matter was referred to the Ministry of Defence in December 2011; their reply was awaited as of July 2012.

8.3 Production of new generation vehicles in Vehicle Factory Jabalpur

Vehicle Factory Jabalpur which undertook manufacture of two new generation vehicles based on transfer of technology from M/s Ashok Leyland Ltd. (Stallion) and M/s Tata Motors Ltd. (LPTA) could achieve in-house manufacture of components/assemblies to the extent of only a meagre 17.46 *per cent* (Stallion) and 16.63 *per cent* (LPTA), as against the objective of achieving 59.04 *per cent* (Stallion) and 51.58 *per cent* (LPTA). Gross under-utilisation of plant and machinery resulted in trade procurement of components and assemblies aggregating ₹498.86 crore during 2008-11.

8.3.1 Introduction

Vehicle Factory Jabalpur (VFJ) undertook manufacture of two types of new generation vehicles (Stallion and LPTA[22]) since 1997-98 based on transfer of technology (ToT) from M/s Ashok Leyland Ltd. and M/s Tata Motors Ltd. (erstwhile Telco).

8.3.1.1 In Paragraph 48 of Audit Report No. 7 of 2001 of the Comptroller and Auditor General of India, a mention was made about tardy progress in implementation of the ToT and loss in manufacture and issue of these vehicles. The Ministry in the Action Taken Note (ATN) of March 2002 stated that the decision to produce Stallion and LPTA vehicles was justified in view of gainful utilisation of the available workforce and installed capacities of the factory and added (May 2003) that the VFJ had achieved break-even point in 2000-01.

8.3.1.2 Our audit of production of the above vehicles during 2008-11 in VFJ revealed substantial delays in implementation of the ToT, poor progress in in-house manufacture of components/assemblies, heavy dependence on trade procurement of various items despite having ToT, loss in issue of the vehicles to the Army as well as high cost of production, as discussed in the succeeding paragraphs.

8.3.2 ToT agreements for in-house production of vehicles

The ToT agreements concluded by OFB in August/September 1998 with M/s Ashok Leyland Ltd. (AL) and M/s Tata Motors Ltd. (TML) for production of Stallion and LPTA vehicles respectively, were valid up to August/September 2005. Considering the Army's requirement of the vehicles for next 10 to 15 years, the validity of the agreements was extended, in October/ December 2006, up to August/September 2012. Effective from 01 October 2010 and as per the orders of the Ministry of Road Transport and Highways, issued in March 2010, the VFJ switched over to the production of BS-III[23] emission norms compliant vehicles.

[22] Lorry Passenger Transport All Terrain
[23] Bharat Stage III emission norms for vehicles

8.3.3 Progress of in-house manufacture of components/assemblies

The ToT agreements had envisaged phase-wise establishment of in-house manufacture of 12 assemblies with components (59.04 *per cent* in terms of cost) for Stallion and 10 assemblies with components (51.58 *per cent* in terms of cost*)* for LPTA vehicle by September 2001, with the progressive deletion of CKD/SKD[24] items supplied by the collaborators.

The OFB claimed (May 2012) to have established in-house manufacture of all the items planned except cabin. However, we observed that the factory continuously manufactured four assembly items *viz.* gear box, auxiliary gear box, front and rear axles of both the vehicles based on CKD and SKD obtained from the collaborators even during 2008-09 to 2010-11, although these were planned to be produced in-house.

We also observed that in terms of value of production, the factory could actually manufacture in-house only 17.46 *per cent* (for Stallion) and 16.63 *per cent* (for LPTA) of the assemblies, even after nine-and-a-half years from the planned period of completion, as against the planned target of 59.04 and 51.58 *per cent* respectively.

Further during 2011-12, in terms of number of items, the factory manufactured in-house only 10 to 18 *per cent* (for Stallion) and 3 to 11 *per cent* (for LPTA) of items (in number) required for the aforesaid major assemblies as detailed below:

Status of in-house production of items for Stallion/LPTA vehicles

Name of assembly	Stallion			LPTA		
	Number of items involved	Items procured from collaborator and trade	Items manufactured in-house (percentage)	Number of items involved	Items procured from collaborator and trade	Items manufactured in-house (percentage)
Gear box	198	179	19 ***(9.60)***	145	132	13 ***(8.97)***
Auxiliary Gear box	128	111	17 ***(13.28)***	106	94	12 ***(11.32)***
Front axle	85	70	15 ***(17.65)***	267	256	11 ***(4.12)***
Rear axle	47	42	5 ***(10.64)***	234	227	7 ***(2.99)***

OFB stated (May 2012) that in-house manufacturing as per make and buy plan was worked out based on indented quantity and availability of manpower and that delayed receipt of indents from the Army for 2008-09 and 2009-10 had compelled VFJ to procure these items from trade. OFB added that the VFJ had not procured the complete assembly in the form of CKD/SKD for BS-II compliant vehicles from collaborators during the year 2007-11. However, such shortfalls were inevitable for production of BS-III compliant vehicles as there was a complete transformation of the models to the updated version.

The reply, however, ignored the following facts:

- production targets for 2008-09 and 2009-10 were given by the Army in October 2007 and October 2008. Army also had placed indent on OFB in

[24] Complete Knocked Down/Semi Knocked Down

April 2008 for 98 *per cent* target of 2008-09 and in January 2009, for 74 *per cent* target of 2009-10; and

- VFJ had continued to procure gear box, auxiliary gear box and front and rear axles as CKD/SKD from collaborators even for BS-II up to 2010-11 without making credible plan and action to establish appropriate manufacturing facilities to produce these assemblies in-house and to achieve higher value addition.

Failure of the factory to manufacture the intended items based on ToT after lapse of more than nine years from the planned period led to continued procurement, during 2008-11, of major assemblies, sub-assemblies and components worth ₹ 498.86 crore (approx) for BS-II version vehicles from the collaborators and trade.

8.3.3.1 Avoidable procurement of components for BS-II version vehicles

Consequent upon the switch over to production of BS-III compliant vehicles in October 2010, certain items used for BS-II version were rendered redundant. Despite this, during May 2010 to January 2011, VFJ placed orders valuing ₹ 9.55 crore on trade for various items for BS-II version vehicles, of which items valuing ₹ 3.02 crore remained unutilised as of December 2011.

OFB stated (May 2012) that the items had been procured on urgent basis due to acute shortage/bottlenecks and that subsequent materialization of the items from regular supply might have rendered them surplus. OFB added that possibilities of utilising these items against warranty replacement and spares for maintenance would be explored. The reply indicates that VFJ had not properly assessed the redundancy of existing inventory as well as procurement process relative to BS-II compliant vehicles, despite being fully aware of the switch over to a new version.

8.3.4 Low utilisation of plant and machinery

Between January 2000 and March 2011, VFJ had procured 196 items of plant and machinery worth ₹ 97.51 crore for manufacture of the new generation vehicles, *viz.* Stallion and LPTA. Our test check of output of machine-hours of 59 machines commissioned between March 2000 and July 2008 showed that, during the period 2008-11, 33 machines were under-utilised by 35 to 70 *per cent*.

OFB attributed (May 2012) under-utilisation of machinery during 2008-09 and 2009-10 to less production load and reduction in manpower. It added that consequent on switch-over from BS-II to BS-III[25] compliant vehicles with effect from October 2010, VFJ had resorted to bulk procurement of CKD/SKD of major assembly/sub-assemblies from collaborators that had led to non-availment of the advantage of utilisation of in-house aggregates in the vehicles.

[25] Bharat Stage II and III emission norms for vehicles

OFB's contention does not reckon the fact that even prior to the switch over VFJ had been manufacturing LPTA and Stallion vehicles using CKD procured from the collaborators for major assemblies like gear box, auxiliary gear box, front axle, rear axle. VFJ's continued dependence on trade procurement of major assemblies/sub-assemblies/ components instead of in-house manufacturing of these items had in fact adversely affected its in-house capacity utilization and worsened this situation on switch over to BS-III compliant vehicles.

8.3.4.1 Under-utilisation of hydraulic press

Non-utilisation of a Hydraulic Press costing ₹ 3.69 crore commissioned in May 2003 for in-house manufacture of cabins of these vehicles by VFJ was commented upon in Paragraph 3.4.5 of Audit Report No. 19 of 2007 (Performance Audit). The Ministry, in its ATN of December 2009, stated that the press was being gainfully utilised to its full capacity for manufacture of various components of Stallion and LPTA. However, the claim of the Ministry was technically incorrect as the press was utilised for only 457 out of 900 working days for making bumper and other parts of the vehicles during 2008-11.

OFB stated (May 2012) that in-house manufacture of cabin was not undertaken due to economy of scale, high capital cost, uncertain product life, low volume of requirement and also that the press had been utilized during 2008-09 to 2010-11 in accordance with the requirements placed by the indentors.

The reply is silent on the action taken by OFB to ensure gainful utilisation of the press to its full capacity for manufacture of other components, as claimed by the Ministry in its ATN of December 2009.

8.3.4.2 Low capacity utilisation of automated assembly line

In order to modernise the LPTA assembly line, VFJ, in July 2005, placed an order on M/s TAL Manufacturing Solutions, Pune for supply and commissioning of an automated LPTA assembly line costing ₹8.86 crore with a projected annual savings of ₹ 58.50 lakh towards manpower cost. VFJ had accepted a higher capacity (15000 vehicles) plant as against the originally planned capacity for production of 2500 to 3000 vehicles, in view of the following:

- designing of the assembly lines for minimum 15000 vehicles *per annum* was economical;
- requirement of an annual production of 8000 to 10000 vehicles of LPTA and Stallion apart from future requirement of 6x6 vehicles; and
- war reserve contingency and future growth prospect.

We observed that the LPTA assembly line, commissioned in March 2008, was utilised only between 23 and 41 *per cent* during 2008-11 due to the following reasons:

- annual production of LPTA, Stallion, water bowser, mine protected vehicle, *etc.* ranged only between 3506 and 6104 against the capacity for 15000 vehicles during 2008-11;
- the same assembly line could not be simultaneously used for manufacture of both LPTA and Stallion; and
- non-receipt of firm order/production target for futuristic 6x6 vehicles from the Army.

Besides, the anticipated annual savings of ₹ 58.50 lakh towards manpower cost, could not be verified as the factory had not revised the labour estimates till December 2011.

OFB, while accepting the fact, stated (May 2012) that the production was carried out as per the orders of the Army and in view of continuous depletion of manpower due to retirement, no manpower had become surplus. It added that downward revision of labour estimates was not feasible as BS-III compliant vehicles possessed advanced features that would involve more work contents/ operations in their manufacture.

The above contention is not acceptable because OFB did not attempt to revise the labour estimates till the introduction of BS-III vehicles *i.e.* October 2010. Further, there was need to revise the labour estimates downward even for the BS-III compliant vehicles because an automated assembly line was being utilised for assembly of various components and assemblies of the LPTA vehicles.

8.3.5 Issue of vehicles to Army over-reported

The table below indicates the details of issue of vehicles to the Army against the target during 2008-09 to 2010-11.

Status of target and issue of vehicles to Army

Year	Stallion (in number)		LPTA (in number)	
	Target	Issue	Target	Issue
2008-09	2476	2475	1184	1184
2009-10	790	790	2207	2207
2010-11	3555	2843	3079	2860

Evidently, in 2010-11, issue of both the types of vehicles fell short of the target, mainly due to switch over of emission norms from BS-II to BS-III from October 2010. We observed from the production report (31 March 2011) that as against the reported issue of 2843 Stallion and 2860 LPTA, only 1894 Stallion and 1575 LPTA vehicles were received in Plant-IV of VFJ for final inspection. Of these, VFJ had actually despatched only 1281 Stallion and 961 LPTA vehicles to the Army up to March 2011. The issue of balance 1562 Stallion and 1899 LPTA vehicles valuing ₹ 567.10 crore had, in fact, spilled over to the next year, which indicated that the achievement during 2010-11 was lower than what was reported to the Ministry.

OFB attributed (May 2012) the shortfall/ over-reporting of issue of vehicles to:

(i) less time available for completing the target after introduction of BS-III emission norms;
(ii) the production of the vehicles being completed with CKD/SKD bought from the collaborators; and
(iii) despatch, being delayed for want of adequate drivers by the transportation contractors.

The reply does not explain why VFJ could not have adequately geared up to meet the production of the BS-III compliant vehicles particularly, when the Government orders were issued in March 2010 itself and ensured that actual issue of vehicles did not lag behind reported issues.

8.3.6 Loss in issue of vehicles to the Army

VFJ suffered a loss of ₹ 24.97 crore in 2008-09 on issue of Stallion to the Army, though later during 2009-10 it earned a profit of ₹ 5.13 crore. The loss suffered in the issue of LPTA during 2008-09 and 2009-10 was ₹ 21.08 crore. The main reason for loss in issue of Stallion in 2008-09 was 26 *per cent* increase in cost of production compared to the previous year owing to 20 and 48 *per cent* hike in material and labour cost respectively.

During 2010-11, VFJ reported an overall profit of ₹ 93.66 crore in the issue of both the vehicles. However, our analysis showed that the profit was unrealistic, since the cost of the vehicles had been under-accounted due to spill over of labour booking to next financial year.

8.3.7 Conclusion

Against the planned in-house manufacture of assemblies/ components to the extent of 59.04 *per cent* of cost of Stallion and 51.58 *per cent* of cost of LPTA vehicle, the achievement was only 17.46 *per cent* (Stallion) and 16.63 *per cent* (LPTA), which is abysmally low. Consequently, major plants and machinery procured for this purpose remained grossly under-utilised. VFJ did not adequately gear up to meet the changes necessary in the production line even though switch over from BS-II to BS-III was a mandatory requirement. Instead, VFJ reverted to the collaborators for the assemblies in CKD/ SKD form for BS-III vehicles.

OFB needs to avoid the practice of over-reporting of issues to the users as this vitiates the annual production accounts of the Ordnance Factories.

The Ministry and OFB need to draw up a well thought out plan for successful establishment of in-house manufacture of all the required assemblies and components in a time bound manner and to reduce the dependence on collaborators and trade for components/assemblies.

The matter was referred to the Ministry of Defence in January 2012; their reply was awaited as of July 2012.

Procurement of Machinery

8.4 Non-commissioning of a costly machine

Failure of Heavy Vehicles Factory Avadi (HVF) to incorporate a specific time schedule for erection and commissioning of an imported machine resulted in its non-commissioning, non-accrual of expected benefits and an idle expenditure of ₹ 20.01 crore.

Heavy Vehicles Factory Avadi (HVF) had one Schiess Machining Centre for machining Main Battle Tank (MBT) turret. In view of the inadequacy of the existing Schiess Machining Centre in machining turrets for MBT as well as Research and Development purposes, HVF felt the need to procure a bigger size vertical turret machine for replacement of condemned machines. HVF also envisaged that the use of the bigger machine would reduce the cost of production annually by ₹ 2.96 crore.

The recommendation (May 2006) of the Tender Purchase Committee Level 1 (TPC), chaired by the Chairman, OFB, for placement of order on the lowest technically acceptable tenderer (a foreign firm), for supply, erection and commissioning (including civil foundation charges) of one CNC Double Column Vertical, Turning, Boring and Milling machine at Free on Board (FOB) price of ₹ 20.40 crore was accepted by the Ministry of Defence (August 2006). As per the supply order (SO) placed (October 2006) on the firm the machine was to be delivered by April 2008 and 90 *per cent* of FOB value released soon after despatch of the shipment. The balance 10 *per cent* was to be released after successful commissioning of the machine on submission of a matching performance bank guarantee valid during the warranty period.

We observed (September 2010) that contrary to a decision made by the TPC, HVF placed the SO without specifying the time schedule for completion of erection and commissioning of the machine. Further, against the scheduled delivery of the machine by April 2008, the firm actually delivered the machine in November 2008. The delay was attributed to inordinate delay by HVF in submission of the drawings to the firm and carrying out pre-despatch inspection of the machine, which itself was attributable to delay in securing the Ministry's sanction for deputation of the factory's representative to Italy. HVF, in November 2008, paid ₹ 20.01 crore to the firm towards 90 *per cent* of the value of the SO (₹ 17.71 crore) and civil works (₹ 2.30 crore).

The firm has failed to commission the machine so far (June 2012) even though more than three and half years had lapsed since the delivery of the machine. Our examination revealed that slippages in commissioning had arisen from the delayed supply of vital items by the firm, non-receipt of fixtures for the MBT Arjun Turret in time and defects in civil works executed by the firm's representative. However, in the absence of specific time schedule for commissioning, HVF is unable to claim any liquidated damages for the delay in commissioning, even though the commissioning of machine

delivered in November 2008 is expected to be completed in as late as November 2012. This situation could have been avoided if a specific date of commissioning of machine had been clearly indicated in the supply order.

In response to our observation, OFB claimed (June 2012) that no delay in erection and commissioning of the machine had occurred due to non-supply of items by the firm and the machine was on component trials. Tacitly admitting the failure to incorporate specific time schedule for commissioning, OFB assured to incorporate specific time frame in future contracts.

The contention of OFB that there was "no delay on part of supplier", is not acceptable as the firm supplied vital components of this machine only between June 2009 and March 2011, much later after receipt of the machine at HVF. The fixtures for Arjun turret were also not supplied on time. The latitude given to the firm in commissioning the machine has led to an idle investment of ₹ 20.01 crore as also consequential loss of anticipated saving of ₹ 2.96 crore in cost of production every year.

The case was referred to the Ministry of Defence in October 2011; their reply was awaited as of July 2012.

8.5 Defective manufacture leading to unserviceability of ammunition

Ammunition valuing ₹ 6.04 crore manufactured by the Ordnance Factory Khamaria and supplied to the Army during March 2007-November 2008 were declared unserviceable as it caused accidents at the Army Depots/Unit during normal handling.

The Ordnance Factories and the Director General of Quality Assurance (DGQA) are jointly and severally responsible for ensuring that the Army receives quality weapons and ammunition produced in the Ordnance Factories to enhance its combat efficiency and effectiveness as a fighting force.

During audit we observed cases of accidents involving an ammunition manufactured by Ordnance Factory Khamaria (OFK) and issued to the Army after inspection by the Senior Quality Assurance Establishment (SQAE). OFK manufactured 32 lots comprising 2.50 lakh ammunition valuing ₹ 5.72 crore[26] and supplied it to the Central Ammunition Depot, Pulgaon (CAD) between March 2007 and November 2008. In July 2008 and February 2009, accidents occurred at CAD during handling of three lots due to bursting of cartridge case inside the packing box of the ammunition. An accident also occurred at one of the Army units to which the ammunition had been issued by the CAD.

[26] 18 lots comprising 1.15 lakh Armour Piercing Incendiary (API) valuing ₹ 2.58 crore and 14 lots comprising 1.35 lakh Armour Piercing Incendiary Tracer (APIT) valuing ₹ 3.14 crore.

Defect investigation of the three affected lots in CAD by the DGQA pinpointed the probable cause to loose lead tin foil/cap composition. As a result, the three affected lots were declared as unserviceable.

A joint investigation committee headed by an Additional General Manager (AGM) of OFK, formed to ascertain the causes of premature functioning of the primers as well as to suggest remedial measures, attributed the cause to defective manufacturing process at OFK. The joint committee suggested 23 remedial measures for implementation by OFK. In view of the findings of the joint committee, the Controllerate of Quality Assurance (Ammunition) Kirkee (CQA/A) declared, in January 2011, the remaining 29 lots of ammunition also as unserviceable.

OFK, after implementation of the remedial measures, manufactured and supplied (November 2008-December 2009) another 31 lots of ammunition to the CAD, of which one lot (9240 rounds valuing ₹ 0.32 crore) again met with an accident at an ammunition depot. Defect investigation by CQA/A on the affected lot found presence of Mercury Fulminate in the propellant, which in turn was attributed to spillage of Mercury Fulminate from the primer, again a case of the same manufacturing defects identified earlier in the accident.

Recurring accidents and analysis of their cause indicated defective manufacture of primers at OFK and deficient Quality Control mechanism in the factory leading to supply of ammunition with loose primers. This resulted in unserviceability of 33 lot of ammunitions valuing ₹ 6.04 crore.

The OFB stated (June 2012) that:

(i) the accidents were not due to the manufacturing defect, *i.e.* loose lead tin foil, since the lots under reference had been found serviceable in all the specified tests including dimensional checks, visual examination, static tests as well as dynamic test during and after manufacture;

(ii) the affected lots withstood extreme handling condition during its loading at OFK, transit from OFK to CAD Pulgaon, unloading at CAD Pulgaon and back loading to OFK without any accidents. It averred that the accident at Army unit might have been due to mishandling;

(iii) the rejection of the ammunition and attributing the accident to the unserviceability was unacceptable to OFB because the same ammunition had passed all the stipulated specification and proof criterion. It also stated that declaring ammunition as unserviceable based on the method of disintegration was not in line with the Original Equipment Manufacturer (OEM); and

(iv) that the production of the ammunition had stabilized and 1.42 lakh ammunition had been produced and supplied to the Army during 2011-12.

The reply of OFB does not address the core issue of the ammunition valuing ₹ 6.04 crore lying in an unusable state since January 2011. Merely by

sharing the blame with DGQA or by stating that the unserviceability is unacceptable, the OFB cannot absolve itself of the responsibility to ensure supply of ammunition that the troops can confidently use. In the instant case, since the ammunition supplied had proven defect prone and, therefore, requiring remedial action, OFB should rectify the defects, if it feels that the ammunition can be safely used. The Ministry may get the matter investigated and take urgent action to have the defects removed so that the costly ammunition is not allowed to perish in stock in the process of internal differences between the OFB, DGQA and the Army.

The matter was referred to the Ministry of Defence in January 2012; their reply was awaited as of July 2012.

8.6 Loss due to manufacture of detonators with vintage components

Ordnance Factory Khamaria manufactured detonators using vintage components supplied by Ammunition Factory Kirkee and Barium Chromate procured from trade, with deviated specifications. It resulted in rejection of detonators costing ₹ 4.64 crore manufactured during January 2008 - October 2009.

Ordnance Factory Khamaria (OFK) embarked on manufacture of detonators of four seconds delay by manufacturing two pilot batches of 500 detonators each in October 2007 and November 2007. The Senior Quality Assurance Establishment (Armament) Khamaria (SQAE) - an organisation functioning under the control of the Controllerate of Quality Assurance Establishment (Ammunition) Kirkee (CQA/A) - was required to inspect the produce for confirmation of departmental specifications.

In March 2008, having taken into consideration the satisfactory performance of the first 10 lots, the CQA/A granted bulk production clearance for manufacturing one lakh detonators, with a condition to subject the same for integrated simulation and acceleration test (ISAT) trials. ISAT trials are required to ensure consistent performance of detonators throughout their shelf life in various environmental conditions.

Against the target of one lakh, the OFK manufactured 30,390 detonators in January/February 2008 and 1,16,176 detonators during March 2008. During quality testing in May 2008, the SQAE/CQA(A), rejected the entire quantity of 30,390 produced during January-February 2008 and 10,960 of the 1,16,176 detonators produced in March 2008 owing to their failure in tests. Subsequently, out of 2,31,321 detonators produced between July 2008 and October 2009, the SQAE again rejected 28,496 detonators. In August 2010, the end users, *i.e.*, the Army rejected 63,597 detonators, from the detonators manufactured and delivered to it during March 2008/July 2008 – August 2009 even though these had passed the quality inspection by the SQAE. Thus, as against the total production of 3,77,887 detonators, 1,33,443 detonators (35.31 *per cent*) were rejected on quality issues. The quality failures were attributed

(March 2010) by a Board of Enquiry constituted by OFK to the use of 1991-94 vintage 'housing and delay tubes' supplied by Ammunition Factory Kirkee (AFK) and failure of detonators to withstand environment and water immersion test. The Board was guided by the reports of the SQAE(A) and CQA (MET). The SQAE (A), after undertaking a joint investigation, had also attributed (February 2010) failure of the detonators to the use of Barium Chromate that did not meet the specifications.

The OFK was responsible for quality control of production through intermediate stage/inter-stage inspection. The end products are proof tested by the quality assurance authorities for acceptance inspection. Hence, rejection of 35.31 *per cent* of the detonators during testing by the quality assurance authorities and the users symtomized the failure of quality control in OFK during the relevant period *i.e.* January 2008 to October 2009. Quality control was all the more imperative since the OFK undertook production of detonators using vintage components and had accepted Barium Chromate which deviated from the prescribed specifications. Thus, poor internal quality control by the OFK, resulted in rejection of 35.31 *per cent* of detonators manufactured by the OFK during January 2008 – October 2009, with a resultant loss of ₹ 4.64 crore.

The Directorate of Quality Assurance (Armaments) stated (January 2012) that **(i)** the performance of the detonators had been found satisfactory in all the ISAT trials; **(ii)** the discrepancy of use of vintage components had been pointed out to OFK by SQAE (A) in March 2008; and **(iii)** the OFK was responsible for acceptance of the Barium Chromate. OFB stated (July 2012) that old vintage components used by OFK, were duly inspected and cleared by Area inspector of AFK, while Barium Chromate with minor deviation of apparent density and mean diameter of average particles was utilized in production only after successful proving of the same in the practical trial conducted in association with the Quality Assurance Establishment (Military Explosives) Khamaria and the Quality Assurance (Material Section)/Production section of the OFK. Thus, both the production and quality assurance agency disowned responsibility for the production of detonators which were eventually found defective. The contention of OFB is unacceptable because **(a)** OFK went ahead with production of 30,390 detonators in February 2008 without waiting for the results of the evaluation of the components from SQAE (A) Khamaria and bulk production clearance from CQA/A, who had referred (February 2008) the matter to CQA (M) Ishapore for advice; and **(b)** OFK was solely responsible for accepting barium chromate with deviation.

The Ministry may order an investigation into the matter to fix responsibility for the loss of ₹ 4.64 crore and to take remedial action, rather than allowing the production and inspection agency to point fingers at each other.

The case was referred to the Ministry of Defence in January 2012; their reply was awaited as of July 2012.

Miscellaneous

8.7 Issue of rejected items to the indentors by Ordnance Factories

Five Ordnance Factories issued sub-standard ammunition to the Ministry of Home Affairs, State Police Forces and Central Police Organisations in violation of standing instructions meant for ensuring quality controls.

Ordnance Factories, in addition to undertaking manufacture and supply arms/ammunition to the Armed Forces, cater to similar needs of the Ministry of Home Affairs (MHA), Central Police Organisations (CPO) and the State/Union Territory Police (SUP). The MHA, in April 1998, informed the OFB that the arms/ammunition supplied to all the MHA units and SUP should be subjected to Director General of Quality Assurance (DGQA) inspection prior to supply to the respective indentors.

We noted that in April 2004, the DGQA had informed the Procurement Wing of MHA that the Ordnance Factories had been resorting to issue of various types of ammunition to MHA under their own inspection, without getting it tested by the DGQA organisation thus defeating the very objective of issuing reliable/authentic armament stores to the MHA. Again, in May 2007, the DGQA informed the MHA, that despite the instructions to get the arms and ammunitions inspected by the DGQA, the MHA units, in order to obtain early supply of stores, were placing open ended supply orders on Ordnance Factories indicating the inspection by the Ordnance Factory concerned. DGQA had pointed out that such an ambiguity on inspection responsibility was being misinterpreted by Ordnance Factories to issue ammunition and arms to MHA units under self certification with diluted specifications.

During audit of five Ordnance Factories (Ammunition Factory Kirkee, Ordnance Factory Dehu Road, Ordnance Factory Varangaon, Ordnance Factory Khamaria and Ordnance Factory Chanda), we noticed (February 2011) that arms, ammunition and weapons valuing ₹ 180.67 crore manufactured by these factories were issued between 2005-06 and 2010-11 to MHA/SUP/CPO, even though it had been rejected in tests by the DGQA inspectorates for different reasons for issue to Army, or which were yet to be cleared in trial evaluation by the Army. This action of the Ordnance Factories was also in contravention of the instructions in vogue for segregating the stores/lots rejected in inspection and shifting them to a bond area under the joint custody of the factory and Quality Assurance Establishments with proper stamping/marking to avoid any mix up. Ordnance Factories are also required to obtain permission from Quality Assurance Establishments and to inform Authority Holding Sealed Particulars (AHSP) in case of withdrawal of those rejected stores for rework/retrieval *etc*.

The issue of these rejected items to the indentors of MHA in violation of above stipulations could compromise their effectiveness as well as endanger the lives of the users. In fact, one rejected lot of ammunition which had been

issued to the Andhra Pradesh Police had caused an accident damaging weapons and caused minor injury on the face of the firer due to the splinters of fired cartridges.

The OFB stated in July 2012 that the MHA could at best issue instructions to the OFB through the Ministry of Defence (MOD), implying that the instructions of April 1998 were not applicable to the OFB, as these had not been received through the MOD. OFB further stated that MHA was willing to accept the stores under factory inspection and none of the State police organisations had approached the factories for getting the stores inspected by DGQA for which they were required to pay Quality Assurance Charges, as per the policy guidelines issued by the MOD in April 2009. OFB affirmed that in no case ammunition which did not conform to the quality standards was issued to the indentors and none of the users had made any complaints about the quality of items supplied to them under self certification.

OFB's contention regarding the inapplicability of MHA's instructions of April 1998 to the Ordnance Factories is not tenable since a copy of the MHA's instruction of April 1998 was not only addressed to the OFB but also endorsed to the Department of Defence Production of the MOD. By acknowledging the MHA's request of April 1998, OFB had even issued instructions to the General Managers of Ordnance Factories in December 1998 to allow the DGQA to inspect the stores supplied to the MHA. OFB also did not explain as to why the items rejected by DGQA for supply to the Army were issued to the MHA under their own self-certification.

Above assertions in the reply of the OFB do not address the fact that supply of stores to MHA, SUP and CPO should have been made only after its clearance by DGQA inspectors as mandated in MHA's letter of April 1998 and repeatedly highlighted by the DGQA. Since the matter is a serious lapse on the part of the Ordnance Factories and violates standing instructions regarding testing of supplies before issue, it needs to be investigated to fix responsibility.

The matter was referred to the Ministry of Defence/Ministry of Home Affairs in February 2012; their replies were awaited as of July 2012.

8.8 Recoveries/savings at the instance of Audit

At the instance of Audit, Ordnance factories and inspectorates of Directorate General of Quality Assurance New Delhi recovered ₹ 44.48 lakh. Further, Ordnance Factory Katni achieved a saving of ₹ 43.20 lakh per annum due to reduction of maximum demand of electricity after pointed out in Audit.

During the course of audit, we observed instances of irregular payments, under/non-recovery of charges, etc. Acting on the audit observations, the audited entities took corrective action, the net effect of which is summarised below:

Recoveries

At the instance of Audit, seven Ordnance Factories and five inspectorates of DGQA cumulatively recovered ₹ 44.48 lakh on account of excess payment of sales tax, recovery of rent/electricity charges/service tax/licence fee/welfare cess/excess pay and allowances/children education allowance/damage rent due to overstayal and recovery of extra cost from a defaulting firm against procurement of a store at higher rate by operation of risk and purchase clause.

Savings

Ordnance Factory Katni achieved an annual saving of ₹ 43.20 lakh by entering into agreement with M/s Madhya Pradesh Poorv Kshetra Vidyut Vitaran Company Limited in December 2010 for reduced maximum demand of electricity of 5500 KVA and 150 KVA in respect of two connections against earlier maximum demand of 6500 KVA and 212 KVA. The reduction was effected after we pointed out that the penalty paid to Electricity Company owing to consumption of less than 90 *per cent* of maximum contracted demand since May 2007 could be avoided by reduction in maximum contracted demand for electricity.

The matter was referred to the Ministry of Defence in January 2012; their reply was awaited as of July 2012.

(VENKATESH MOHAN)
New Delhi **Director General of Audit**
Dated: 2012 **Defence Services**

Countersigned

New Delhi **(VINOD RAI)**
Dated: 2012 **Comptroller and Auditor General of India**