ANNEXURE-I

(Referred to in Paragraph 1.9)

Position of outstanding ATNs

Ministry of Defence - excluding Ordnance Factory Board

(i) Pending for more than ten years

Sl.No.	Report No. and Year	Para No.	Subject
1.	No. 2 of 1989	11**	Purchase and licence production of 155mm towed gun system and ammunition
2.	No.12 of 1990	9**	Contract with Bofors for (a) purchase and licence production of 155mm gun system and (b) Counter Trade
3.	No.8 of 1991	10*	Procurement of stores in excess of requirement.
4.		13*	Central Ordnance Depot, Agra.
5.	No.8 of 1993	29*	Import of mountaineering equipment and sports items
6.		31*	Avoidable payment of detention charges
7.	No. 7 of 1997	18**	Management of Defence Land
8.	No. 7 of 1998	32*	Infructuous expenditure on procurement of substandard cylinders
9.	No. 7 of 2001	15**	Procurement of an incomplete equipment
10.	No.7A of 2001	@Entire Report (ATN for 8 out of 42 paras yet to be received even for the 1st time)	Review of Procurement for OP VIJAY(Army)
11.	No. 6 of 2003	2**	Exploitation of Defence lands
12.		14*	Irregular recruitment of personnel

Sl.No.	Report No. and Year	Para No.	Subject
13.	No. 6 of 2004	3.2*	Recoveries/Savings at the instance of Audit.
14.	No. 6 of 2005	3.2*	Recoveries/savings at the instance of Audit
(ii)	**Pending more than 5 years upto 10 years**		
15.	Report No. 4 of 2007	3.3**	Unauthorised use of Defence assets and public fund for running educational institutes
16.		3.5*	Recoveries/savings at the instance of Audit
17.	Report No. PA 4 of 2008 (Performance Audit)	Chapter I**	Supply Chain Management of General Stores and Clothing in the Army
18.	Report No. CA 17 of 2008-09	2.7*	Non-renewal of lease of land occupied by Army Golf Club
19.		3.4*	Unauthorized use of A-1 Defence land by Army Welfare Education Society
20.		3.5*	Utilisation of Government assets for non-governmental purposes
(iii)	**Pending more than 3 years upto 5 years**		
21.	Report No. 12 of 2010-11	2.1**	Defective import of SMERCH Multi Barrel Rocket Launcher System
22.		3.6*	Recoveries and savings at the instance of Audit
23.		4.1**	Irregular sanction and construction of accommodation for a Golf Club
24.	Report No. 6 of 2010-11 (Performance Audit)	Standalone Report***	Supply Chain Management of Rations in Indian Army
25.	Report No. 14 of 2010-11 (Performance Audit)	Standalone Report*	Canteen Stores Department
26.	Report No. 35 of 2010-11 (Performance Audit	Standalone Report*	Defence Estates Management

Sl.No.	Report No. and Year	Para No.	Subject
27.	Report No. 11 of 2011-12 (Performance Audit)	Entire Report*	Special report on Adarsh Co-operative Housing Society, Mumbai
28.	Report No.24 of 2011-12	3.1**	Extra expenditure due to acceptance of higher rates
29.		3.11**	Irregular payment to Civil Hired Transport Contractors
30.		3.14*	Recoveries and savings at the instance of Audit
31.		5.2**	Non-completion of bridge after twelve years of sanction
(iv)	**Pending upto 3 years**		
32.	Report No.16 of 2012-13	2.1*	Loss of revenue on renewal of lease of Government land
33.		2.3*	Loss due to non-levy of licence fee on vehicles entering Cantonment Board Ahmednagar
34.		3.1**	Unauthorised use of defence assets and manpower for the benefit of Army Welfare Education Society
35.	Report No. 18 of 2012-13	Entire Report*	Performance Audit of the Medical Establishments in Defence Services
36.	Report No. 30 of 2013	2.1*	Improper management of Defence land
37.		2.3*	Non introduction of Air Conditioners in Tanks
38.		2.5*	Absence of effective controls resulting in non recovery of outstanding dues
39.		3.1***	Acceptance of sub-standard stores without prior technical inspection from an unregistered and inexperienced firm
40.		3.6***	Unauthorised use of Defence accommodation
41.		3.7*	Recoveries, savings and adjustment in accounts at the instance of Audit

Sl.No.	Report No. and Year	Para No.	Subject
42.		4.4*	Inadmissible payment of escalation charges to the contractors
43.	Report No. 35 of 2014	2.1***	Inordinate delay in indigenisation of TATRA vehicles
44.		2.2***	Procurement of unacceptable equipment valuing ₹27.32 crore
45.		2.3***	Loss of revenue due to unauthorised use of Defence land by United Services Club, Mumbai
46.		2.4***	Irregular construction on Defence leased land
47.		2.5***	Non recovery of overpaid rent for requisitioned land
48.		2.6***	Unfruitful expenditure on payment of bandwidth charges by Canteen Stores Department
49.		3.1***	Nugatory expenditure of ₹88.39 crore in the procurement of Chemical, Biological, Radiological and Nuclear (CBRN) Equipment
50.		3.2*	Extra expenditure of ₹2.33 crore due to failure to accept the tender for procurement of tea within the validity period
51.		3.3***	Loss of revenue due to non collection of metal scrap from Field Firing Range
52.		3.4***	Procurement of defective tyres
53.		3.5***	Over provisioning and uneconomical issue of Batteries by COD Agra
54.		3.6***	Recoveries, savings and adjustment in accounts at the instance of Audit
55.		4.1***	Avoidable expenditure on construction of excess dwelling units

Sl.No.	Report No. and Year	Para No.	Subject
56.		4.2***	Inordinate delay in handing over the clear site to the contractor resulted in avoidable payment of escalation charges
57.		4.3***	Selection of improper site resulted in foreclosure of work after an expenditure of ₹5.49 crore
58.		5.1***	Unauthorised utilization of funds for construction of a Multipurpose Hall
59.		5.2***	Construction of a bridge without sub-soil investigation resulted in loss of ₹0.75 crore
60.		7***	Defence Grants-in-Aid Scheme of Defence Research and Development Organization

*** Action Taken Notes examined by Audit but yet to be revised by the Ministry in the light of Audit remarks – 26**

**** ATNs vetted by Audit but copy of the finalized ATNs awaited from Ministry – 13**

***** Action Taken Notes not received even for the first time - 20**

@ Part ATN received – 01

ANNEXURE-II

(Refer to Para 2.1.2)

Statement showing the mandated services to be provided by the CBs as per the Section 62 of Cantonments Act 2006

i. lighting streets and other public places;

ii. watering streets and other public places;

iii. cleansing streets, public places and drains, abating nuisances and removing noxious vegetation;

iv. regulating offensive, dangerous or obnoxious trades, callings and practices;

v. removing, on the ground of public safety, health or convenience, undesirable obstructions and projections in streets and other public places;

vi. securing or removing dangerous buildings and places;

vii. acquiring, maintaining, changing and regulating places for the disposal of the dead;

viii. constructing, altering and maintaining streets, culverts, bridges, causeways, markets, slaughter- houses, latrines, privies, urinals, drains, drainage works and sewerage works and regulating their use;

ix. planting and maintaining trees on roadsides and other public places;

x. providing or arranging for a sufficient supply of potable water, where such supply does not exist, guarding from pollution water used for human consumption, and preventing polluted water from being so used;

xi. registering births and deaths;

xii. preventing and checking spread of dangerous diseases; establishing and maintaining a system of public vaccination and inoculation for the said objective;

xiii. establishing and maintaining or supporting public hospitals, maternity and child welfare centres and dispensaries, and providing public medical relief;

xiv. establishing and maintaining or assisting primary schools etc..

xv. rendering assistance in extinguishing fires, and protecting light and property when fire occurs;

xvi. maintaining and developing the value of property vested in, or entrusted to, the management of the Board;

xvii. establishing and maintaining civil defence services;

xviii. preparing and implementing town planning schemes;

xix. preparing and implementing plans for economic development and social justice;

xx. naming and numbering of streets and premises;

xxi. according or refusing permission to erect or re- erect building;

xxii. organising, promoting or supporting cultural and sports activities;

xxiii. celebrating Independence Day and Republic Day and incurring expenditure thereon;

xxiv. fulfilling any other obligation imposed upon it by or under this Act or any other law for the time being in force.

ANNEXURE-III

(Referredto in Paragraph2.1.2.2)

Authorized and posted strength of manpower of the test checked 17 CBs during the period 2009-10 to 2013-14

Sl. No	Cantonment Board	Position as of 31 March 2010		Position as of 31 March 2011		Position as of 31 March 2012		Position as of 31 March 2013		Position as of 31 March 2014		
		Author-ised	Posted	Author-ised	Posted	Authori-sed	Posted	Author-ised	Posted	Authori-sed	Posted	Percent-age
1	Lucknow/I	613	525	613	517	613	504	604	488	594	470	79
2	Dehradun./I	453	320	453	318	453	304	453	304	453	292	64
3	Meerut /I	844	730	844	710	843	690	843	668	843	638	76
4	Ramgarh/I	268	239	268	239	268	223	268	212	268	214	80
5	Ahmednagar/II	210	186	209	185	209	182	249	178	209	166	79
6	Barrackpore/II	214	151	214	140	213	137	213	132	213	125	59
7	Clement Town/II	156	136	156	141	156	129	156	115	156	115	67
8	Danapur/II	181	136	179	127	179	130	178	128	179	120	67
9	KhasYol/II.	78	65	77	66	77	64	77	61	75	62	83
10	Pachmarhi/II	112	78	100	80	110	82	114	86	114	105	92
11	Ranikhet/II	352	276	351	261	352	252	352	240	352	227	64
12	Shillong/II	73	62	73	62	73	62	73	62	73	60	82
13	Wellington/II	190	176	191	175	191	176	191	176	191	175	92
14	Chakrata/III	117	76	117	75	118	71	118	70	118	66	56
15	Lansdowne/III	102	87	103	84	103	79	103	75	103	71	68
16	Dalhousie/IV	78	58	79	59	79	56	79	55	79	54	68
17	Jalapahar/IV	56	54	56	54	56	54	56	55	57	51	89
	TOTAL	**4097**	**3355**	**4083**	**3293**	**4093**	**3195**	**4127**	**3105**	**4077**	**3011**	**74**

ANNEXURE-IV

(Referred to in Paragraph 2.1.2.5)

Statement showing the supply and network coverage of the water supplied by the test checked 17 CBs

Sl. No	Name of the CB	Cate gory	Number of households	Network coverage (in %)	Per capita supply in litres lpcd
1	Dehradun	I	8475	100	150 to 187
2	Lucknow	I	2275	80	140
3	Meerut	I	6003	100	140
4	Ramgarh	I	8242	28	70
5	Ahmednagar	II	2947	100	57
6	Barrackpore	II	1162	100	135
7	Clement Town	II	NA	NA	
8	Danapur	II	2006	100	158
9	Khasyol	II	1466	100	50
10	Pachmarhi	II	899	100	56
11	Ranikhet	II	970	100	85
12	Shillong	II	156	100	48
13	Wellington	II	3609	35	95
14	Chakrata	III	765	100	66
15	Lansdowne	III	268	99	36
16	Dalhousie	IV	497	100	70
17	Jalapahar	IV	70	100	140

ANNEXURE-V

(Referred to in Paragraph 2.1.2.6)

Statement showing availability of hospital facilities and population (as per 2011 census) of the test checked 17 CBs during the period 2009-10 to 2013-14.

Cantonment/ Category	Population	Medical facilities at the CBs		Bed Strength of Hospital
		Hospital	Dispensary/ Polyclinic	
Meerut/I	93312	1	0	70
Lucknow/I	63003	1	1	44
Ramgarh/I	88781	1	0	32
Dehradun/I	52716	1	1	18
Danapur/II	28723	0	1	0
Clement Town/II	22557	1	0	14
Ahmednagar/II	28986	1	1	36
Barrackpore/II	17380	1	0	25
Wellington/II	19462	1	0	30
Ranikhet/II	18886	0	1	0
Shillong/II	11919	0	1	0
Khasyol/II	12028	1	0	20
Pachmarhi/II	12062	0	1	0
Chakrata/III	5117	0	0	0
Lansdowne/III	5667	1	0	33
Dalhousie/IV	3549	1	0	2
Jalapahar/IV	1711	0	1	0

ANNEXURE-VI

(Referred to in Paragraph 2.1.2.6)

Statement showing the availability of educational facilities in test checked 17 CBs during the period 2009-10 to 2013-14.

Cantonment/ Category	Education facilities at the CBs						
	KG	PS	EMS	JHS	HS	GIC	IC
Meerut/I	--	4	--	--	--	--	1
Lucknow/I	--	4	1	1	1	--	--
Ramgarh/I	--	6 MS	--	--	1	--	--
Dehradun/I	--	2	1	2	--	1	--
Danapur/II	-	-	-	-	-	-	--
Clement Town/II	-	-	--	1	--	--	--
Ahmednagar/II	1	5	--	--	1	--	--
Barrackpore/II		2	--	--	--	--	--
Wellington/II	--	1	--	--	1	--	--
Ranikhet/II	--	4	--	1	1	--	--
Shillong/II	--	1	--	--	--	--	--
Khasyol/II	--	4	--	--	1	--	--
Pachmarhi/II	--	1	--	--	--	--	--
Chakrata/III	-	2	--	--	1	--	--
Lansdowne/III	--	1	--	--	1	--	--
Dalhousie/IV	-	1	--	--	--	--	--
Jalapahar/IV	--	1	--	--	--	--	--

KG-Kinder Garten School, PS-Primary School, EMS-English medium school, JHS-Junior High School, HS-High School, GIC-Girls Intermediate College, IC-Intermediate College, MS-Middle School

ANNEXURE-VII

(Referred to in Paragraph 2.1.3.1)

Statement indicating expenditure incurred on establishment, original works and maintenance works by the test checked 17 CBs during the period 2009-10 to 2013-14.

(₹in crore)

SL No	Name of CB/ Category	Expenditure on establishment	Expenditure on original works	Expenditure on maintenance works	Total expenditure
1	Dehradun/I	22.63	1.00	27.23	50.86
2	Lucknow/I	73.48	0.23	48.86	122.57
3	Meerut/I	85.32	0	24.71	110.03
4	Ramgarh/I	17.95	2.10	19.17	39.22
5	Ahmednagar/II	30.44	0.66	7.31	38.41
6	Barrackpore/II	18.1	0	8.73	26.83
7	Clement town/ II	10.32	0	14.51	24.83
8	Danapur/II	13.76	0	4.29	18.05
9	Khasyol/II	14.13	0	2.86	16.99
10	Panchmarhi/II	7.08	0	7.88	14.96
11	Ranikhet/II	30.07	0	7.28	37.35
12	Shillong/II	12.48	0.75	6.53	19.76
13	Wellington/II	21.5	0	29.61	51.11
14	Chakrata/III	16.71	0	15.54	32.25
15	Lansdowne/III	14.94	1.57	12.75	29.26
16	Dalhousie/IV	4.16	0	1.19	5.35
17	Jalapahar/IV	5.75	0	7.93	13.68
	Total	**398.82**	**6.31**	**246.38**	**651.51**

ANNEXURE-VIII

(Referred to in Paragraph 2.1.3.2)

Statement indicating actual expenditure as a percentage of anticipated expenditure and actual allotment of funds in r/o test checked 17CBsduring the period 2009-10 to 2013-14.

Sl No.	Financial Year	Anticipated Expenditure as per Revised Estimates (₹in crore)	Allotment of funds by PDDE (₹ in crore)	Actual Expenditure (₹in crore)	*per cent* of expenditure *vis-a-vis* REs	*per cent* of expenditure *vis-a-vis* Allotment
1	**CB Dehradun**					
	2009-10	39.78	29.43	18.10	45.50	61.50
	2010-11	43.92	30.50	21.72	49.45	71.21
	2011-12	48.67	28.97	17.81	36.59	61.48
	2012-13	38.36	31.56	21.06	54.90	66.73
	2013-14	40.92	36.03	20.94	51.17	58.12
2	**CB Lucknow**					
	2009-10	33.71	33.71	24.92	73.92	73.92
	2010-11	45.37	45.37	27.50	60.61	60.61
	2011-12	40.50	40.50	30.88	76.25	76.25
	2012-13	49.91	49.91	36.77	73.67	73.67
	2013-14	56.36	56.36	41.00	72.74	72.74
3	**CB Meerut**					
	2009-10	39.05	39.05	28.62	73.29	73.29
	2010-11	41.03	42.60	33.74	82.23	79.20
	2011-12	39.84	39.84	31.96	80.22	80.22
	2012-13	44.64	44.64	37.01	82.91	82.91
	2013-14	59.56	59.50	41.52	69.71	69.78

Sl No.	Financial Year	Anticipated Expenditure as per Revised Estimates (₹in crore)	Allotment of funds by PDDE (₹ in crore)	Actual Expenditure (₹in crore)	*per cent* of expenditure *vis-a-vis* REs	*per cent* of expenditure *vis-a-vis* Allotment
4	**CB Ramgarh**					
	2009-10	20.20	20.20	12.20	60.40	60.40
	2010-11	22.51	22.51	13.68	60.77	60.77
	2011-12	21.24	21.24	14.49	68.22	68.22
	2012-13	40.72	41.87	10.94	26.87	26.13
	2013-14	56.86	52.63	22.51	39.59	42.77
5	**CB Ahmednagar**					
	2009-10	13.74	12.33	9.59	69.80	77.78
	2010-11	16.47	14.20	11.50	69.82	80.99
	2011-12	19.62	16.06	12.83	65.39	79.89
	2012-13	21.50	17.22	12.37	57.53	71.84
	2013-14	21.08	19.69	14.70	69.73	74.66
6	**CB Barrackpore**					
	2009-10	17.70	17.70	7.08	40.00	40.00
	2010-11	20.19	16.79	10.83	53.64	64.50
	2011-12	18.23	18.23	**10.69**	58.64	58.64
	2012-13	20.55	20.55	9.10	44.28	44.28
	2013-14	18.08	18.08	10.35	57.25	57.25
7	**CB Clement Town**					
	2009-10	7.75	7.75	4.82	62.20	62.20
	2010-11	10.53	10.53	8.88	84.33	84.33
	2011-12	16.23	16.23	8.30	51.14	51.14
	2012-13	15.96	15.96	10.16	63.66	63.66
	2013-14	20.25	20.25	10.81	53.38	53.38
8	**CB Danapur**					
	2009-10	13.22	10.12	3.86	29.20	38.14

Sl No.	Financial Year	Anticipated Expenditure as per Revised Estimates (₹in crore)	Allotment of funds by PDDE (₹ in crore)	Actual Expenditure (₹in crore)	*per cent* of expenditure *vis-a-vis* REs	*per cent* of expenditure *vis-a-vis* Allotment
	2010-11	18.64	16.25	6.12	32.83	37.66
	2011-12	18.31	18.96	5.41	29.55	28.53
	2012-13	16.80	16.90	7.42	44.16	43.90
	2013-14	19.99	18.10	8.95	44.77	49.45
9	**CB Khasyol**					
	2009-10	3.47	4.89	3.40	97.98	69.53
	2010-11	4.17	5.45	4.24	101.67	77.80
	2011-12	4.71	5.89	4.64	98.51	78.78
	2012-13	5.24	6.39	5.59	106.67	87.48
	2013-14	6.61	7.88	6.66	100.76	84.52
10	**CB Pachmarhi**					
	2009-10	8.42	6.06	2.70	32.07	44.55
	2010-11	6.27	6.27	5.89	93.94	93.94
	2011-12	13.57	7.60	6.20	45.69	81.58
	2012-13	15.33	14.23	8.40	54.79	59.03
	2013-14	11.11	16.75	8.18	73.63	48.84
11	**CB Ranikhet**					
	2009-10	15.08	15.08	8.49	56.29	56.29
	2010-11	15.20	15.20	13.07	85.99	85.99
	2011-12	16.76	16.76	11.74	70.05	70.05
	2012-13	19.84	19.84	12.89	64.97	64.97
	2013-14	22.23	22.23	13.21	59.42	59.42
12	**CB Shillong**					
	2009-10	4.29	5.17	3.33	77.62	64.41
	2010-11	7.96	7.96	4.33	54.40	54.40

Sl No.	Financial Year	Anticipated Expenditure as per Revised Estimates (₹in crore)	Allotment of funds by PDDE (₹ in crore)	Actual Expenditure (₹in crore)	*per cent* of expenditure *vis-a-vis* REs	*per cent* of expenditure *vis-a-vis* Allotment
	2011-12	6.33	6.50	3.93	62.09	60.46
	2012-13	13.65	13.83	4.25	31.14	30.73
	2013-14	7.81	11.40	6.81	87.19	59.74
13	**CB Wellington**					
	2009-10	19.04	12.46	7.35	38.60	58.99
	2010-11	31.63	15.30	14.93	47.20	97.58
	2011-12	37.38	18.86	16.73	44.76	88.71
	2012-13	44.08	26.86	17.74	40.25	66.05
	2013-14	54.54	32.81	21.78	39.93	66.38
14	**CB Chakrata**					
	2009-10	15.89	15.89	5.90	37.13	37.13
	2010-11	11.72	11.72	7.36	62.80	62.80
	2011-12	16.56	16.56	5.31	32.07	32.07
	2012-13	20.48	20.48	6.86	33.50	33.50
	2013-14	24.10	24.10	10.43	43.28	43.28
15	**CB Lansdowne**					
	2009-10	8.18	8.18	5.98	73.10	73.10
	2010-11	9.85	9.85	6.52	66.19	66.19
	2011-12	12.64	12.64	7.13	56.41	56.41
	2012-13	13.91	13.91	9.68	69.59	69.59
	2013-14	13.22	13.22	10.51	79.50	79.50
16	**CB Dalhousie**					
	2009-10	3.16	3.16	2.17	68.67	68.67
	2010-11	3.75	3.75	2.78	74.13	74.13
	2011-12	4.19	4.19	3.07	73. 27	73. 27

Sl No.	Financial Year	Anticipated Expenditure as per Revised Estimates (₹in crore)	Allotment of funds by PDDE (₹ in crore)	Actual Expenditure (₹in crore)	*per cent* of expenditure *vis-a-vis* REs	*per cent* of expenditure *vis-a-vis* Allotment
	2012-13	5.13	5.13	3.37	65.69	65.69
	2013-14	6.36	6.36	3.85	60.53	60.53
17	**CB Jalapahar**					
	2009-10	4.71	4.71	**2.83**	60.08	60.08
	2010-11	4.53	4.53	3.50	77.26	77.26
	2011-12	5.25	5.25	4.29	81.71	81.71
	2012-13	4.64	4.64	3.30	71.12	71.12
	2013-14	6.66	4.89	3.14	47.15	64.21

Budget estimates were not available in respect of CBs Dehradun, Clement Town, Khasyol, Lansdowne and Dalhousie. Therefore figures have been taken from Proforma-XIX submitted by the CBs.

Details of Expenditure of CBs as a percentage of Revised Estimates and Budget Allotment in r/o 17 test checked CBs during the period 2009-10 to 2013-14.

Sl. No	Name of CB	2009-10		2010-11		2011-12		2012-13		2013-14	
		Exp as % of RE	Exp as % of Allotment	Exp as % of RE	Exp as % of Allotment	Exp as % of RE	Exp as % of Allotment	Exp as % of RE	Exp as % of Allotment	Exp as % of RE	Exp as % of Allotment
1	Dehradun	45.50	61.50	49.45	71.21	36.59	61.48	54.90	66.73	51.17	58.12
2	Lucknow	73.92	73.92	60.61	60.61	76.25	76.25	73.67	73.67	72.74	72.74
3	Meerut	73.29	73.29	82.23	79.20	80.22	80.22	82.91	82.91	69.71	69.78
4	Ramgarh	60.40	60.40	60.77	60.77	68.22	68.22	26.87	26.13	39.59	42.77
5	Ahmednagar	69.80	77.78	69.82	80.99	65.39	79.89	57.53	71.84	69.73	74.66
6	Barrackpore	40.00	40.00	53.64	64.50	58.64	58.64	44.28	44.28	57.25	57.25
7	Clement town	62.20	62.20	84.33	84.33	51.14	51.14	63.66	63.66	53.38	53.38
8	Danapur	29.20	38.14	32.83	37.66	29.55	28.53	44.17	43.90	44.77	49.45
9	Khasyol	97.98	69.53	101.67	77.80	98.51	78.78	106.67	87.48	100.76	84.52
10	Pachmarhi	32.07	44.55	93.94	93.94	45.69	81.58	54.79	59.03	73.63	48.84

11	Ranikhet	56.29	56.29	85.99	85.99	70.05	70.05	64.97	64.97	59.42	59.42
12	Shillong	77.62	64.41	54.40	54.40	62.09	60.46	31.14	30.73	87.19	59.74
13	Wellington	38.60	58.99	47.20	97.58	44.76	88.71	40.25	66.05	39.93	66.38
14	Chakrata	37.13	37.13	62.80	62.80	32.07	32.07	33.50	33.50	43.28	43.28
15	Lansdowne	73.10	73.10	66.19	66.19	56.41	56.41	69.59	69.59	79.50	79.50
16	Dalhousie	68.67	68.67	74.13	74.13	73.27	73.27	65.69	65.69	60.53	60.53
17	Jalapahar	60.08	60.08	77.26	77.26	81.71	81.71	71.12	71.12	47.15	64.21

Source document: *Annual consolidated Accounts, Budget Estimates and information furnished in Proforma XIX by the 17 CBs for the review period*

ANNEXURE-X

(Referred to in Paragraph 4.1.1)

Statement showing the allotment and expenditure under tariff head of budget for the year 2011-12, 2012-13, and 2013-14

(₹in Lakhs)

Sl No	Name of GE	2011-12		2012-13		2013-14	
		Allotment	**Expenditure**	**Allotment**	**Expenditure**	**Allotment**	**Expenditure**
1.	GE (Utility) Meerut	1466.25	1455.19	1528.50	1634.77	2009.20	2009.68
2.	GE (North) Meerut	65.00	59.80	80.00	81.84	102.81	102.81
3.	GE Roorkee	573.230	631.446	650.00	722.028	746.00	838.054
4.	GE (C/T)Dehradun	386.520	386.515	371.00	403.610	380.30	405.47
5.	GE(MCTE) Mhow	721.068	721.068	795.200	795.170	777.105	777.105
6.	GE (East) Bareilly	239.500	191.661	198.500	198.500	302.000	326.018
7.	GE (Army) Suratgarh	750.00	850.00	840.337	992.16	993.00	1002.90
8	GE Chandigarh	510.77	510.77	615.28	615.28	436.58	436.58
9.	GE (South) Jaipur	844.00	892.71	1226.92	1056.63	1274.05	1343.78
10.	GE (East) Jallandhar	1637.20	1637.18	2724.64	2724.69	2274.58	2274.58
11.	GE (CME) Depodi, Pune	927.84	927.82	943.56	943.55	834.97	872.57
12.	GE(I) R&D Pashan, Pune	826.21	744.02	810.80	891.52	810.00	748.00
13.	GE (N) MEG Centre Bangalore	425.40	425.40	557.85	557.85	599.04	599.04
14.	GE (R&D) (RCI) Hyderabad	1569.24	1569.24	1943.38	1943.38	2496.58	2498.58
15.	GE (MES)Kanpur	268.39	268.39	353.47	353.47	461.61	461.61
16.	GE (E) Lucknow	12.00	12.00	9.01	9.01	14.39	14.39
17.	GE (East) Allahabad	483.62	483.62	506.06	506.06	600.00	601.80
18.	GE Babina	502	484.88	511.61	511.31	635.85	647.57
19.	GE Jhansi	900.00	864.97	955.55	939.55	1209.00	1208.80
20.	GE (W) Jabalpur	1288.77	1215.45	1391.34	1432.58	1399.89	1354.09
21.	GE Dipatoli	331.61	319.24	314.07	352.09	338.87	361.59
22.	GE (U) Udhampur	2225.00	2046.22	2625.38	2418.67	2597.30	2042.51
23.	GE Satwari	824.20	824.21	1025.69	999.12	1228.93	1228.93
24.	GE (Utility) Delhi Cantt	180.00	177.726	242.424	242.424	265.798	265.798
25.	GE Missamari	256.165	284.74	318.321	352.398	406.06	406.059
26.	GE(I) R&D (East) Bangalore	1720.40	1720.40	1850.00	1850.00	1953.58	1953.58
27.	GE (North) Binnaguri	-	-	1274.000	1261.007	1378.783	1378.766
28.	GE (Central) Kolkata	-	-	439.00	439.00	505.50	505.50
29.	GE Alipore	-	-	793.230	793.229	919.00	918.53
30.	GE 869 EWS	-	-	78.72	78.72	104.00	104.00

Source of data*:-*The above data has been compiled from the information provided by/obtained from MES authorities.

ANNEXURE-XI

(Referred to in Paragraph 4.1.3.1.A)

Showing excess payment made towards electricity charges due to incorrect application of tariff schedule

Sl. No.	Station Name of the GE by whom Electricity bills were paid	Tariff schedule under which Electricity billing was done by Electric Supply Agency	Tariff Schedule applicable to MES	Period for which wrong billing was done by State Electricity supply Agency	Excess amount paid due to difference in energy and fixed charges rates of both the Tariff Schedule (₹ in lakhs)
1.	Saharanpur (UP) GE Roorkee	HV-1	LMV-1(b)	10/2012 to 03/2014	93.68
2.	Purkazi (UP) GE Roorkee	HV-1	LMV-1(b)	10/2012 to 03/2014	28.21
3.	Babugarh GE (North), Meerut (UP)	HV-1	LMV-1(b)	10/2012 to 03/2014	53.62
4.	Dabathuwa GE (Utility) E/M Meerut (UP)	HV-1	LMV-1(b)	10/2012 to 01/2014	32.40
5.	Kanpur GE (I) R&D, Kanpur	LMV I A	LMV I (b)	04/2011 to 11/2012	27.89
6.	Mhow GE(MCTE), Mhow(MP)	HV 3.2	HV 6.1	04/2011 to 02/2014	352.26
7.	Pachmari AGE (I) Pachmari (MP)	HV 3.2	HV 6.1	04/2011 to 03/2013	09.96
8.	Dapodi, GE (CME) Dapodi, Pune	Industrial	Residencial	04/2011 to 03/2014	104.06
9.	Pashan, Pune GE (I) R&D Pashan, Pune	Industrial	Residencial	04/2009 to 10/2013	110.19
10.	Dehradun (GE (CT), Dehradun (UK)	RTS-2	RTS-8	04/2011 to 03/2014	31.36
11.	Tawi(Sangroor) GE (U) Udhampur	Schedule-3	Schedule-7	04/2011 to 03/2014	208.49
12.	Dwarka, GE (W) Delhi Cantt	MLHI/NDHT	CGHS(SDR)	04/2011 to 01/2014	132.58
➢				**Total**	**1184.70**

Source of data: *Monthly bills of electricity paid by the GEs and applicable tariff schedule to the concerned stations*

ANNEXURE-XII

(Referred to in Paragraph 4.1.3.2)

Showing GE/Station wise details of avoidable payment of demand/fixed charges

Sl. No.	Station	Name of GE who made payment for Electric Bills	Period for which avoidable payment made by GEs	Excess amount paid due to payment of fixed/demand charges at inflated/over estimated CMD in comparison to actual maximum demand (₹ in lakhs)
1.	Dabathuwa	GE (Utility) Meerut	10/2012 to 12/2013	40.44
2.	Shahjahanpur	GE (East), Bareilly	04/2011 to 03/2014	14.90
3.	Suratgarh	GE (Army) Suratgarh	04/2009 to 03/2013	63.79
4.	Bangalore	GE (I) R&D (E) Bangalore	01/2013 to 03/2014	34.16
5.	Babina	GE Babina	04/2011 to 03/2014	11.16
6.	Jhansi	GE Jhansi	04/2011 to 03/2014	13.86
7.	Nowgaon (MP)	GE Jhansi	04/2011 to 03/2014	11.83
8.	Kanpur	GE Kanpur	04/2011 to 03/2014	07.17
9.	Jabalpur	GE(W) Jabalpur	)11 to 03/2014	76.79
		GE (E) Jabalpur	03/2013 to 03/2014	37.53
10.	Anand Parbat Delhi	GE (North), Delhi Cantt.	04/2011 to 03/2014	12.89
11.	Hiren Kudna Delhi	-do-	04/2011 to 03/2014	05.35
12.	Shillong	GE Shillong	04/2011 to 03/2014	32.69
13.	Dipatoli	GE Dipatoli	04/2011 to 03/2014	26.03
14.	Kolkata	GE (Central) Kolkata	04/2011 to 03/2014	09.76
			Total	**398.35**

ANNEXURE-XIII

(Referred to in Paragraph 4.1.4.1)

Showing details of fixed charges non/short recovered

	Station	Name of GE /BSO	Amount (₹ in lakh)	Period
1.	Bareilly	GE (East)	07.08	04/2011 to 03/2014
2.	Kanpur	GE (I) R&D	153.30	01/2003 to 06/2012
3.	Delhi Cantt.	GE (Central)	31.95	03/2008 to 03/2014
		GE (South)	11.39	04/2011 to 12/2013
4.	Alipore	GE Alipore	07.73	04/2011 to 03/2014
5.	Missamari	GE Missamari	12.24	04/2011 to 03/2014
6.	Leinakhong	GE 869 EWS	07.70	04/2011 to 03/2014
7.	Binnaguri	GE (North) Binnaguri	04.77	04/2011 to 03/2014
8.	Nagrota	GE Nagrota	01.29	04/2013 to 03/2014
9.	Udhampur	(i)GE(South) Udhampur	02.05	04/2013 to 03/2014
		(ii)GE(North) Udhampur	01.20	04/2013 to 03/2014
10.	Mamun	GE (North) Mamun	03.92	04/2012 to 03/2014
		Total	**244.62**	

ANNEXURE-XIV

(Referred to in Paragraph 4.1.4.3)

Showing details of meter rent not recovered by GEs/BSO from the domestic consumers

Name of GE	Nos of meters installed	Meter rent (per month) as per tariff (in ₹)	Months	Amount (₹in lakh)	Period
GE Chandimandir	4655	11.00 (20-9)	31	15.87	09/2011 to 03/2014
GE Chandigarh	349	10.00 (upto March 2013) 20.00 (w.e.f. April 2013)	24 12	1.68	04/2011 to 03/2014
GE (North) Ambala	9131	20.00	31	56.61	09/2011 to 03/2014
GE (East), Jabalpur	3732	10.00	24	08.96	04/11 to 03/13
	3782	10.00	12	04.54	04/13 to 03/14
GE(West) Jabalpur	5092	10.00	12	06.11	04/11 to 03/12
	6135	10.00	24	14.72	04/12 to 03/14
Total				**108.49**	

ANNEXURE-XV

(Referred to in Paragraphs 7.1.2 and 7.1.6)

Details of Cost of Production and Value of Issues

	M&C	WV&E	A&E	AV	OEF	Total
Cost of Production (₹ in crore)						
2011-12	2074.90	3812.50	5266.52	3818.35	961.17	**15933.44**
2012-13	2363.68	3693.91	5285.98	3515.71	1113.16	**15972.44**
2013-14	2286.95	3655.37	5517.54	2930.54	1246.27	**15636.67**
VOI						
2011-12	2368.64	4165.54	5585.65	4263.68	874.88	**17273.20**
2012-13	2516.28	4109.93	5540.77	3836.42	1115.90	**17119.30**
2013-14	2382.40	3966.44	5584.44	2926.91	1261.91	**16122.10**
Breakup of element-wise cost 2013-14 (₹ in crore)						
Material	1034.76	1928.29	3710.22	2085.45	544.58	**9303.30**
	(45.25)	**(52.75)**	**(67.24)**	**(71.16)**	**(43.70)**	**(59.50)**
Labour	283.95	426.26	436.40	230.25	327.97	**1704.83**
	(12.42)	**(11.66)**	**(7.91)**	**(7.86)**	**(26.32)**	**(10.90)**
Direct Expense	101.35	42.23	66.85	24.23	4.68	**239.34**
	(4.43)	**(1.16)**	**(1.21)**	**(0.83)**	**(0.38)**	**(1.53)**
FOH	618.03	876.16	1040.97	431.97	277.35	**3244.48**
	(27.02)	**(23.97)**	**(18.87)**	**(14.74)**	**(22.25)**	**(20.75)**
VOH	248.86	382.43	263.10	158.64	91.69	**1144.72**
	(10.88)	**(10.46)**	**(4.77)**	**(5.41)**	**(7.36)**	**(7.32)**
Total	**2286.95**	**3655.37**	**5517.54**	**2930.54**	**1246.27**	**15636.67**
Inventory position(₹ in crore)						
Stores in hand	621.12	978.71	2269.56	1596.99	121.47	**5587.85**
WIP	419.42	881.02	1002.14	1184.65	50.84	**3538.07**
Finished Stock	335.26	204.35	186.16	559.09	20.11	**1304.97**
Stores in transit	41.18	133.22	561.69	116.16	0.73	**852.98**
Total	**1388.91**	**2197.3**	**4019.55**	**3456.89**	**193.15**	**11255.80**

*(**Source** : Annual Accounts of the Ordnance Factories for the year 2013-14)*

(Figures in the parenthesis represent thepercentage of element-wise cost to cost of production)

ANNEXURE-XVI

(Referred to in Paragraph 7.2.1.4)

Cost of production of selected items

	2011-12			
SI. No.	**Name of the Weapon/manufacturing factory**	**Quantity manufactured (Number)**	**Unit cost of production (₹)**	**Total cost of production (₹)**
	Small Arms			
1	5.56 MM Rifle (Fixed Butt) (ARMY)/ RFI	31200	28834	899620800
	5.56 MM Rifle (Fixed Butt) (MHA)/ RFI	31068	28834	895814712
	5.56 MM Rifle (Fixed Butt) (ARMY)/ OFT	5400	29757	160687800
	5.56 MM Rifle (Fixed Butt) (MHA/UT)/ OFT	18603	29757	553569471
	5.56 MM Rifle (Fixed Butt) (ARMY)/ SAF	20000	32221	644420000
2	5.56 MM Rifle (Foldable Butt) (MHA)/ RFI	3548	30182	107086836
3	5.56 mm LMG (Fixed Butt) (Army) /SAF	4050	45344	183643200
4	Gun Machine 7.62mm /SAF	264	401861	106091304
5	Rifle 7.62mm (MHA)/OFT	7774	26020	202279480
6	Pistol Auto 9 mm (Army) /RFI	3000	18552	55656000
7	Carbine 9 mm (MHA)/SAF	6000	21121	126726000
8	12.7 mm Air Defence Gun (ARMY/IFD) /OFT	76	1186996	90211696
9	12.7 mm Prahari (Navy) /GCF	50	2662431	133121550
10	Revolver 0.32" (CT/MHA) /FGK	11065	40080	443485200
	Revolver 0.32" (CT/MHA) / SAF	7820	28800	225216000
11	0.32" Pistol (CT) /GSF	10628	30604	325258781
12	0.315 Sporting Rifle (CT) /RFI	8161	39799	324799369
	Medium Calibre			
13	30 mm Cannon for BMP Vehicle (IFD) /OFT	82	2932107	240432774
14	AK-630 Gun (Navy) /GSF	4	65618063	262472250
		4	47075065	188300258
15	40 mm UBGL (Army/MHA) /OFT	2538	29473	74802474
	Large Calibre			
16	81 mm Mortar with CES(Army) /GCF	111	1483949	164718339
17	84 MM Rocket Launcher MK-III (Army) /GSF	838	796113	667142694
18	105 mm LFG With CES (ARMY) /GCF	54	23247352	1255357008
19	Final Gun Assembly of T-90 Tank (IFD) /GCF	100	11797962	1179796200
20	Spare Barrel for T-90 (Army) /GCF	50	4118316	205915800
21	Spare Barrel T-72 (ARMY) /GCF	120	3760872	451304640
22	T-90 Ordnance (OE) (IFD) /FGK	26	9645622	250786172
23	Overhaul with old Barrel (IFD) /FGK	26	3477538	90415988
24	Overhaul with new Barrel (IFD) /FGK	8	5198717	41589736
25	105mm LFG Ordnance (IFD) /FGK	32	4067324	130154368
	TOTAL			**1068,08,76,900**

2012-13				
SI. No.	**Name of the Weapon/manufacturing factory**	**Quantity manufactured (Number)**	**Unit cost of production (₹)**	**Total cost of production (₹)**
	Small Arms			
1	5.56 MM Rifle (Fixed Butt) (NAVY)/ RFI	685	29988	20541780
	5.56 MM Rifle (Fixed Butt) (MHA)/ RFI	39590	29988	1187224920
	5.56 MM Rifle (Fixed Butt) (ARMY)/OFT	3900	32600	127140000
	5.56 MM Rifle (Fixed Butt) (MHA)/OFT	15438	32600	503278800
	5.56 MM Rifle (Fixed Butt) (ARMY)/ SAF	19724	36818	726198232
2	5.56 MM Rifle (Foldable Butt) (MHA)/ RFI	11035	32419	357743665
3	5.56 mm LMG (Fixed Butt) (Army) /SAF	3201	54418	174192018
4	Gun Machine 7.62mm /SAF	300	449612	134883600
5	Rifle 7.62mm (STATE POLICE/UT)/OFT	6586	23210	152861060
6	Pistol Auto 9 MM /RFI (ARMY)	3899	19027	74186273
	Pistol Auto 9 MM /RFI (MHA)	11656	19027	221778712
7	Carbine 9 MM (MHA) /SAF	1234	24363	30063942
8	12.7 MM Air Defence Gun (IFD) /OFT	40	830962	33238480
9	12.7 MM Prahari (Navy) /GCF	14	2739784	38356976
10	Revolver 0.32" (CT) FGK	11224	40366	453067984
	Revolver 0.32" (CT/MHA) / SAF	8399	32241	270792159
11	0.32" Pistol (CT) /GSF	10840	28883	313091720
12	0.315 Sporting Rifle (CT) /RFI	6296	38085	239783160
	Medium Calibre			
13	30 mm Cannon Gun for BMP Vehicle (IFD) /OFT	84	2529893	212511012
14	AK-630 Gun (Navy) /GSF	5	67157451	335787255
15	40 mm UBGL (Army) /OFT	4001	51745	207031745
	Large Calibre			
16	81 mm Mortar with CES (DRDO) /GCF	6	1896092	11376552
	81 mm Mortar with CES (MHA) /GCF	15	1025397	15380955
17	84 MM Rocket Launcher MK-III (Army) /GSF	827	783287	647778349
18	105 MM LFG With CES (ARMY) /GCF	44	23555526	1036443144
19	Final Gun Assembly of T-90 Tank (IFD) GCF	39	12918756	503831484
20	Spare Barrel for T-90 (Army) /GCF	22	4066411	89461042
21	Spare Barrel T-72 (ARMY) /GCF	235	3868338	909059430
22	T-90 Ordnance (OE) (IFD) /FGK	30	8733656	262009680
23	Overhaul with old Barrel (IFD) /FGK	27	2923948	78946596
24	Overhaul with new Barrel (IFD) /FGK	21	4450561	93461781
25	105mm LFG Ordnance (IFD) /FGK	9	4046888	36421992
	TOTAL			**949,79,24,498**

2013-14				
SI. No.	**Name of the Weapon/manufacturing factory**	**Quantity manufactured (Number)**	**Unit cost of production (₹)**	**Total cost of production (₹)**
	Small Arms			
1	5.56 MM Rifle (Fixed Butt) (NAVY)/ RFI	820	32746	26851720
	5.56 MM Rifle (Fixed Butt) (MHA)/ RFI	9739	32746	318913294
	5.56 MM Rifle (Fixed Butt) (STATE POLICE/UT)/ RFI	23982	32746	785314572
	5.56 MM Rifle (Fixed Butt) (MHA/UT)/ OFT	3609	34482	124445538
	5.56 MM Rifle (Fixed Butt) (ARMY)/SAF	5055	43557	220180635
2	5.56 MM Rifle (Foldable Butt) (ARMY)/ RFI	8454	35559	300615786
	5.56 MM Rifle (Foldable Butt) (MHA)/ RFI	2050	35559	72895950
3	5.56 mm LMG (Fixed Butt) (Army) /SAF	6303	65154	410665662
4	Gun Machine 7.62mm /SAF	270	527082	142312140
5	Rifle 7.62mm (UT)/OFT	4239	29134	123499026
6	Pistol Auto 9 MM(MHA) RFI	843	20847	17574021
	Pistol Auto 9 MM(UT) RFI	7545	20847	157290615
7	Carbine 9 MM (MHA) /SAF	2339	28197	65952783
8	12.7 MM Air Defence Gun (ARMY/IFD) /OFT	60	893376	53602560
9	12.7 MM Prahari (Navy) /GCF	34	3462132	117712488
10	Revolver 0.32" (CT) /SAF	8685	37288	323846280
11	0.32" Pistol (CT) /GSF	13952	28284	394618368
12	0.315 Sporting Rifle (CT) /RFI	6740	43926	296061240
	Medium Calibre			
13	30 mm Cannon Gun for BMP Vehicle /OFT	72	3765225	271096200
14	AK-630 Gun (Navy) /GSF	7	81290335	569032345
15	40 mm UBGL /OFT	7000	55557	388899000
	Large Calibre			
16	81 mm Mortar with CES /GCF	182	1929423	351154986
17	84 MM Rocket Launcher MK-III /GSF	757	821830	622125310
18	105 MM LFG With CES (Army) /GCF	13	28114405	365487265
19	Final Gun Assembly of T-90 Tank (IFD) /GCF	28	14480990	405467720
20	Spare Barrel for T-90 (Army) /GCF	24	4664847	111956328
21	Spare Barrel T-72 /GCF	215	4731040	1017173600
22	T-90 Ordnance (OE) (IFD) /FGK	21	9256432	194385072
23	Overhaul with old Barrel (IFD) /FGK	26	3202908	83275608
24	Overhaul with new Barrel (IFD) /FGK	13	5313149	69070937
25	105mm LFG Ordnance (IFD) /FGK	5	4326133	21630665
	TOTAL			**842,31,07,714**
	GRAND TOTAL			**2860,19,09,112**

Total cost of production of 25 selected weapon items **Say ₹2860 crore**
Total cost of production of other 43 weapon items in six factories - ₹758 crore
Hence, percentage of cost of production of selected 25 Items to total cost of production of 68 items- 79%

***(Source:** Annual Accounts of OFOrganisation Vol. I& II)*

ANNEXURE-XVI(A)

(Referred to in Paragraph 7.2.2.2)

Increase in Army's requirement

Items	Year	Roll-on Plan	Outstanding dues from past indents	Quantity indented for the year	Date of receipt of indent	Increase in requirement (*per cent*)
1	**2**	**3**	**4**	**5**	**6**	**7= (4+5-3)/ 3*100**
81mm Mortar	2011-12	150	0	321	05.04.2011	114
	2012-13	150	210	188	15.06.2012	165
84mm Rocket Launcher MK-III	2011-12	600	7	1189	21.04.2011	99
	2013-14	300	2	700	29.07.2013	134
Spare barrel T-72 tanks	2012-13	100	20	128 124	09.01.2012 27.03.2012	172
	2013-14	100	37	192	02.09.2013	129
Spare barrel T-90 tank	2012-13	50	60	30	29.03.2012	80

***(Source:** Army's Roll-on-Plan, Army's indent on OFB)*

ANNEXURE-XVI(B)

(Referred to in Paragraph 7.2.2.2)

MHA's Roll-on-plan and target fixed in the Target Fixation Meeting between OF Board and MHA

Sl. No.	Name of the items	Year	Requirement as per Roll-on-plan (Number)	Target as per Target Fixation Meeting (Number)
1.	Rifle 5.56mm INSAS	2011-12	42496	45000
		2012-13	47562	54167
		2013-14	44540	9888
2.	Pistol Auto 9mm	2011-12	21896	10000
		2012-13	23932	10255
		2013-14	26029	2244
3.	LMG 5.56mm INSAS	2011-12	3522	2770
		2012-13	3997	2531
		2013-14	3204	1952
4.	81mm Mortar	2011-12	142	32
		2012-13	161	5
		2013-14	140	4
5.	7.62mm MAG	2011-12	81	200
		2012-13	93	48
		2013-14	65	--
6.	Carbine machine 9mm	2011-12	7404	4530
		2012-13	7957	6096
		2013-14	8565	2935

***(Source: -** MHA's Roll-on-plan (2010) and Minutes of Target Fixation Meetings)*

ANNEXURE-XVII-A

(Referred to in Paragraph 7.2.2.2, 7.2.2.3, 7.2.2.4, 7.2.2.5 and 7.2.2.6)

Statement showing total requirement by the Indentors, targets, production capacity and achievement

Item (Factory)		Requirement (Number)				Targets to Factories (No.)					Capacity		Achievement	
	Year	Army	MHA	Others*	Total	Army	MHA	Others*	Total	Target as a % of requirement	Production Capacity (No.)	Target as a % of Capacity	Number	Achievement as a % of Target
5.56mm Rifle Fixed Butt (RFI, SAF, OFT)	2011-12	77733	45000		122733	45000	55000		100000	81	93000 (combined capacity of 5.56mm Fixed and Foldable Butt)	118	106781	107
	2012-13	31133	54167		85300	27733	70000		97733	115		114	97161	99
	2013-14	0	9888		9888	0	72000		72000	728		96	43260	60
5.56mm Rifle Foldable Butt (RFI)	2011-12	8454	4500		12954	4454	5000		9454	73			3548	38
	2012-13	8454	11200		19654	4000	4747		8747	45			11035	126
	2013-14	8454	1100		9554	8454	9083		17537	184			13722	78
5.56mm LMG (SAF)	2011-12	8132	2770		10902	0	4000		4000	37	8000	50	3639	91
	2012-13	8132	2531		10663	0	3997		3997	37	8000	50	3360	84
	2013-14	9232	1952		11184	5000	5620		10620	95	8000	133	6293	59
Rifle 7.62mm (OFT)	2011-12		6000		6000		10000		10000	167	5000	200	7774	78
	2012-13		14990 (Projection)		14990		8000		8000	53	5000	160	6586	82
	2013-14		0		0		4000		4000		5000	80	4239	106
Gun Machine 7.62mm (SAF)	2011-12	378	200		578	0	300	60	360	62	300	120	264	73
	2012-13	378	48		426	160	160	40	360	85	300	120	300	83
	2013-14	721	558 (Projection)	221	1500	400	0	0	400	27	300	133	265	66
Pistol Auto 9mm (RFI)	2011-12	5806	10000		15806	3000	11000		14000	89	9600	146	13208	94
	2012-13	3899	10255		14154	3899	13661		17560	124	9600	183	15555	89
	2013-14	0	2244		2244	0	16000		16000	713	9600	167	8332	52

		Requirement (Number)				Targets to Factories (No.)					Capacity		Achievement	
Item (Factory)	**Year**	**Army**	**MHA**	**Others***	**Total**	**Army**	**MHA**	**Others***	**Total**	**Target as a % of requirement**	**Production Capacity (Number)**	**Target as a % of Capacity**	**Number**	**Achievement as a % of Target**
Carbine 9mm (SAF)	2011-12		4530		4530		6000		6000	132	7680	78	4458	74
	2012-13		6096		6096		7592		7592	125	7680	99	3632	48
	2013-14		2935		2935		2935		2935	100	7680	38	2640	90
12.7mm Prahari (GCF)	2011-12				0			30	30		60	50	0	0
	2012-13				0			35	35		40	88	64	183
	2013-14			10	10			140	140	1400	40	350	40	29
40mm UBGL (OFT)	2011-12	11581	0		11581	4000	0		4000	35	1500	267	2549	64
	2012-13	9032	0		9032	4607	0		4607	51	1500	307	4001	87
	2013-14	6732	0		6732	7000	239		7239	108	1500	483	7055	97
AK-630 Gun (GSF)	2011-12				0			15	15		10	150	4	27
	2012-13				0			18	18		10	180	5	28
	2013-14				0			15	15		10	150	10	67
81mm Mortar with CES (GCF)	2011-12	321	32		353	111	32		143	41	150	95	145	101
	2012-13	398	5		403	150	50	6	206	51	150	137	146	71
	2013-14	273	4		277	150	50	6	206	74	150	137	182	88
105mm LFG with CES (GCF)	2011-12	106			106	54			54	51	34	159	54	100
	2012-13	52			52	52			52	100	34	153	44	85
	2013-14	8			8	54			54	675	34	159	13	24
84mm Rocket Launcher MK-III (GSF)	2011-12	1196	55		1251	600	405		1005	80	1800	56	804	80
	2012-13	542	0		542	2000	300		2300	424	1800	128	806	35
	2013-14	702	575 (Projection)		1277	2500	300		2800	219	1800	156	612	22

		Requirement (Number)				Targets to Factories (No.)					Capacity		Achievement	
Item (Factory)	**Year**	**Army**	**MHA**	**Others***	**Total**	**Army**	**MHA**	**Others***	**Total**	**Target as a % of requirement**	**Production Capacity (Number)**	**Target as a % of Capacity**	**Number**	**Achievement as a % of Target**
Spare Barrel for T-72 (GCF)	2011-12	140			140	80		6	86	61	120	72	136	158
	2012-13	272			272	120		20	140	51	200	70	247	176
	2013-14	229			229	270		20	290	127	280	104	215	74
Spare Barrel for T-90 (GCF)	2011-12	110			110	40			40	36	33	121	50	125
	2012-13	90			90	40			40	44	33	121	22	55
	2013-14	68			68	40			40	59	33	121	24	60
Revolver 0.32" (SAF, FGK)	2011-12							19000	19000		20700	92	20474	108
	2012-13							20000	20000		20700	97	19623	98
	2013-14							20000	20000		20700	97	19153	96
0.32" Pistol (GSF)	2011-12							12000	12000		15000	80	9882	82
	2012-13							12500	12500		12000	104	11563	93
	2013-14							12000	12000		12000	100	13409	112
0.315" Sporting Rifle (RFI)	2011-12							10000	10000		15000	67	8171	82
	2012-13							10000	10000		15000	67	6296	63
	2013-14							10000	10000		15000	67	6785	68

* Others = Navy + ODD + PSU/CT

***(Source:** Army's Roll-on-Plan, Army's indent on OFB, Board's Production Performance Reports for Army items and Board's targets on weapon factories, Factories' Achievement Reports, Committee Report on assessment of capacity in Ordnance Factories)*

ANNEXURE-XVII(B)

(Referred to in Paragraph 7.2.2.3, 7.2.2.5&7.2.2.6)

Details of Targets by OFB, Capacity and Achievement (IFD Items)

Sl. No.	Item		Target by OFB (Number)		Capacity		Achievement	
		Year	Original Target	Revised Target	Production Capacity (Number)	Target as a % of Capacity	Physical (Number)	As % of Revised/ Original Target
1	12.7mm Air Defence Gun (OFT)	2011-12	50		120	42	91	182
		2012-13	100		120	83	40	40
		2013-14	150		120	125	60	40
2	30mm Cannon for BMP vehicle (OFT)	2011-12	70	105	110	95	87	83
		2012-13	105		110	95	84	80
		2013-14	105	72	110	65	72	100
3	Final Gun Assembly to T-90 Tanks (GCF)	2011-12	100		100	100	100	100
		2012-13	100		234	43	39	39
		2013-14	100		234	43	53	53
4	T-90 Ordnance (FGK)	2011-12	40	30	33	91	26	87
		2012-13	50		33	152	30	60
		2013-14	50		33	152	10	20
5	Overhaul without Barrel (FGK)	2011-12	15	45	120 (combined capacity)	50	26	58
		2012-13	45			50	27	60
		2013-14	45			50	14	31
6	Overhaul with New Barrel (FGK)	2011-12	45	15			8	53
		2012-13	15				21	140
		2013-14	15				42	280
7	105 mm LFG Ordnance (FGK)	2011-12	36		36	100	32	89
		2012-13	13		36	36	9	69
		2013-14	27		36	75	5	19

***(Source:** Board's targets on weapon factories, Factories' Achievement Reports, Committee Report on assessment of capacity in Ordnance Factories)*

ANNEXURE-XVIII (A)

(Referred to in Paragraph 7.2.2.6)

Item-wise analysis of production performance

Item	Achievement (Number) (Percentage of Achievement against Targets [182])			Change in targets over 2011-14 (%)	Change in production 2011-14 (%)
	2011-12	2012-13	2013-14		
5.56mm Rifle (Foldable Butt)	3548 *(38)*	11035 *(126)*	13722 *(78)*	85	287
Pistol Auto 9mm	13208 *(94)*	15555 *(89)*	8332 *(52)*	14	(-)37
0.315" Sporting Rifle	8171 *(82)*	6296 *(63)*	6785 *(68)*	0	(-)17
5.56mm LMG	3639 *(91)*	3360 *(84)*	6293 *(59)*	166	73
7.62mm Machine Gun	264 *(73)*	300 *(83)*	265 *(66)*	11	0
9mm Carbine	4458 *(74)*	3632 *(48)*	2640 *(90)*	(-)51	(-)41
30mm Canon (BMP)	87 *(83)*	84 *(80)*	100 *(100)*	(-)31	(-)17
40mm UBGL	2549 *(64)*	4001 *(87)*	7055 *(97)*	81	177
81mm Mortar	145 *(101)*	146 *(71)*	182 *(88)*	44	26
Gun Assembly T-90	100 *(100)*	39 *(39)*	53 *(53)*	0	(-)47
Spare Barrel T-90	50 *(125)*	22 *(55)*	24 *(60)*	0	(-)52
T-90 Ordnance (OE)	26 *(87)*	30 *(60)*	10 *(20)*	67	(-)62
105mm LFG Ordnance	32 *(89)*	9 *(69)*	5 *(19)*	(-)25	(-)84
84mm Rocket Launcher Mark III	804 *(80)*	806 *(35)*	612 *(22)*	179	(-)24
AK 630 Gun	4 *(27)*	5 *(28)*	10 *(67)*	0	150
0.32" Pistol	9882 *(82)*	11563 *(93)*	13409 *(112)*	0	36

***(Source:** Board's Production Performance Reports for weapon items and Board's targets on weapon factories, Factories Achievement Reports)*

The analysis showed that:

- For three of 16 items analysed in audit, the Board reduced the targets over the period 2011-14, in some cases substantially *e.g.* 9 mm carbine (by 51 *per cent*) and 30mm Canon (31 *per cent*). The Factories could not meet even the reduced targets and in fact, the achievement worsened over the past years by 17 to 84 *per cent*. For instance, targets of 105mm LFG Ordnance and 9mm Carbine were reduced by 25 and 51 *per cent* in

[182] As per capacity data furnished by OFB, there was no change in capacity over the period 2011-14 except for two items. Hence, it is presumed that there was no capacity augmentation during 2011-14.

2013-14 against 2011-12 but the production of these items further fell in 2013-14 by 84 and 41 *per cent* respectively due to late receipt (October 2013) of formal order from Army, and less receipt of payment from MHA and non-availability of trigger assembly for 9mm Carbine.

- The Factories could step up the production in select items, meeting targets even when the targets were raised. For instance, 5.56mm Rifle (Foldable Butt), 5.56mm LMG, 81mm Mortar and 40mm UBGL registered a step-up in production, meeting 44 to 166 *per cent* increase in targets over the period 2011-14.

- The Factories showed consistent achievement of 60 *per cent* and above for six items.[183] However, only two items *viz*. 30mm Canon and 0.32" Pistol marked a consistent high performance at the level of 80 *per cent* and above each year during 2011-14. The achievement of Gun Shell Factory Cossipore for 84 mm Rocket Launcher Mark-III series was only 22 *per cent* in 2013-14 with 66 *per cent* RFR in quality controls during the year, which merits a re-look by the Board.

[183] 0.315" Sporting Rifle, 7.62mm Machine Gun, 30mm Canon, 40mm UBGL, 81mm Mortar and 0.32" Pistol

ANNEXURE-XVIII (B)

(Referred to in Paragraph 7.2.2.6)

Reasons for shortfall in achievement of targets

Factory	Items	Reasons for shortfall
Rifle Factory, Ishapore	5.56mm Rifle (Foldable Butt)	Belated receipt of bulk production clearance in October 2012 and short closure of indent by the Army due to quality issues
	9mm Pistol	Bottlenecks in procurement of input stores from trade Less off-take by MHA due to high issue price.
	0.315" Sporting Rifle	Less off-take by private indentors due to quality problems.
	5.56mm Rifle (Fixed Butt)	No payment from MHA.
Small Arms Factory, Kanpur	5.56mm LMG	Late receipt of components (in the metal injection mould mode)
	7.62mm MAG	Quality problems due to low rate of firing.
Ordnance Factory, Trichy	30mm Canon	Non-availability of ammunition for proof trials and delayed placement of import orders for components from Russia.
	40mm UBGL	Problems in the coating process (in manufacture) and delayed supply of proof ammunition from sister factory.
Gun Shell Factory, Cossipore	84mm Rocket Launcher/AK 630 Gun	Delay in processing of orders for imported product support. Non-availability of barrel ex-import.
Gun Carriage Factory, Jabalpur	12.7mm Prahari	Non-availability of formal order from Navy; Delays in receipt of design modifications.
	81mm Mortar	Belated procurement of base plate ex-import and delays in proof inspection and post-proof activities.
	Spare Barrel T-90	Priority given to production of Spare Barrel T-72 and T-90 Gun, less availability of input barrels from sister factories.
	Spare Barrel T-72	Less receipt of input barrels from Ordnance Factory Kanpur and Field Gun Factory Kanpur, casing from Metal & Steel Factory Ishapore.
	T-90 Gun	Constraint of ammunition for proof of ordnance and gun.
	105mm LFG	Delay in inspection and post proof activities and late receipt of formal orders.
Field Gun Factory, Kanpur	T-90 Ordnance	Late receipt of input items from M/s MIDHANI
	T-72 Barrel	Late receipt of forgings from Metal & Steel Factory, Ishapore.

***(Source**: Board's Production Performance Reports for weapon items, Factories' Achievement Reports and Board's/Factories reply)*

ANNEXURE-XIX (A)

(Referred to in Paragraph 7.2.3.2)

Procurement: Delayed Placement of Supply Orders (Cumulative over 2011-14)

Factory (No. of Orders)	Time taken (in months)	Delayed issue of Tender Enquiry (No.)	Orders placed with delay (No.)
RFI (1402)	1-2	788	-
	2-5	471	-
	5-8	56	327
	>8	7	136
Total		**1322*(94%)***	**463*(33%)***
SAF (266)	1-2	75	-
	2-5	89	-
	5-8	30	81
	>8	9	26
Total		**203*(76%)***	**107*(40%)***
GSF (665)	1-2	257	-
	2-5	84	-
	5-8	63	67
	>8	59	132
Total		**463*(70%)***	**199*(30%)***
OFT (26)	1-2	2	-
	2-5	2	-
	5-8	0	10
	>8	0	8
Total		**4 *(15%)***	**18*(69%)***
FGK (29)	1-2	4	-
	2-5	8	-
	5-8	1	5
	>8	0	9
Total		**13*(45%)***	**14*(48%)***
GCF (34)	1-2	2	-
	2-5	20	-
	5-8	1	10
	>8	7	23
Total		**30*(88%)***	**33*(97%)***

(Source:** Supply order database of factories**)

ANNEXURE-XIX (B)

(Referred to in Paragraph 7.2.3.3)

Receipt of Components from Sister Factories

IFD items	Year-wise requirement	Quantity received
Receipt of components in FGK from Metal and Steel Factory Ishapore		
Barrel forging (T-72)	2013-14 : 261	2013-14 : 142
Casing forging (T-72)	2013-14 : 364	2013-14 : 184
Receipt of components in GCF from Ordnance Factory Kanpur		
Spare Barrel T-90	2013-14 : 21	2013-14 : 6
Spare Barrel T-72	2012-13 : 118	2012-13 : 107
T-90 Ordnance	2012-13 : 36	2012-13 : 30
Receipt of components in GCF from Field Gun Factory, Kanpur		
Spare Barrel T-90	2013-14 : 29	2013-14 : 20
Spare Barrel T-72	2012-13 : 155 2013-14 : 150	2012-13 : 138 2013-14 : 139
T-90 Ordnance	2012-13 : 50 2013-14 : 17	2012-13 : 30 2013-14 : 10
105mm LFG Ordnance	2012-13 : 21 2013-14 :8	2012-13 : 9 2013-14 :5

(Source :*Factories' Achievement Report)*

ANNEXURE-XIX(C)

(Referred to in Paragraph 7.2.3.4)

Time taken in inspection of input materials

Factory	Number of cases examined	Time Taken (in days) No. of cases					Total No. of cases with delays (percentage)
		≤15	16-30	31-60	61-90	>91	
RFI	7342	3729	2619	841	109	44	3613*(49)*
SAF	9392	4222	3119	1504	393	154	5170*(55)*
GSF	3080	1841	665	367	101	106	1239 *(40)*
OFT	15048	8887	3472	1816	530	343	6161*(41)*
FGK	498	183	10	36	46	223	315*(63)*
GCF	5117	1856	1099	1145	582	435	3261*(63)*
Total	**40477**	**20718**	**10984**	**5709**	**1761**	**1305**	

(Source: *Receipt voucher database of factories)*

ANNEXURE-XX (A)

(Referred to in Paragraph 7.2.3.6)

Labour efficiency and Production Achievement

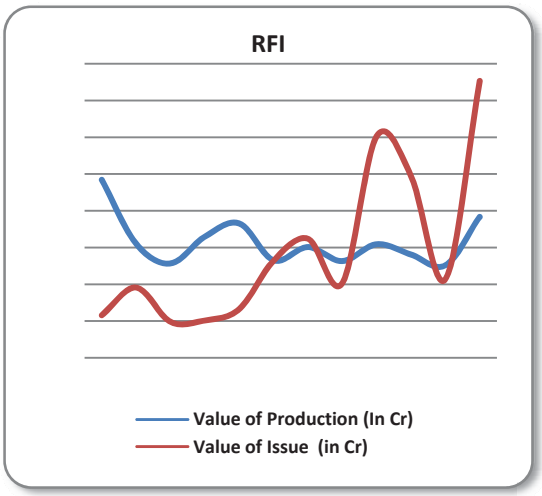
Performance in 2013-14	**RFI**	**SAF**	**OFT**	**GSF**	**FGK**	**GCF**
No. of months where labour efficiency was more than 150 *per cent*	8	11	6	2	4	0
Achievement of target by March	**Percentage of sampled items**					
100 *per cent* of the target	25	0	40	33	40	0
99-60 *per cent* of the target	50	80	20	33	0	50
Below 60 *per cent* of the target	25	20	40	33	60	50
Cost of production (₹ in crore)	340	197	167	479	204	501
Number of direct labour	1863	877	710	1723	576	1488

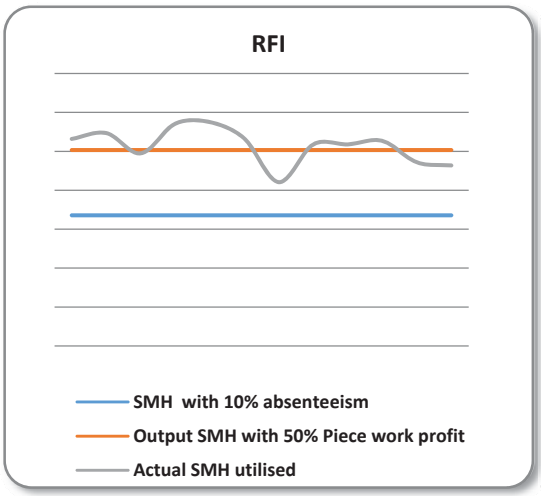
(Source:*Standard Man Hours (SMH) available/ utilised at six weapon factories as furnished by OFB & Annual Accounts Vol-I of OFOrganisation)*

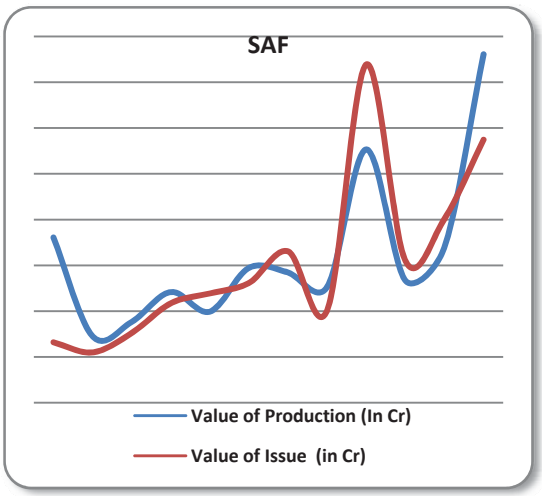
ANNEXURE-XX (B)

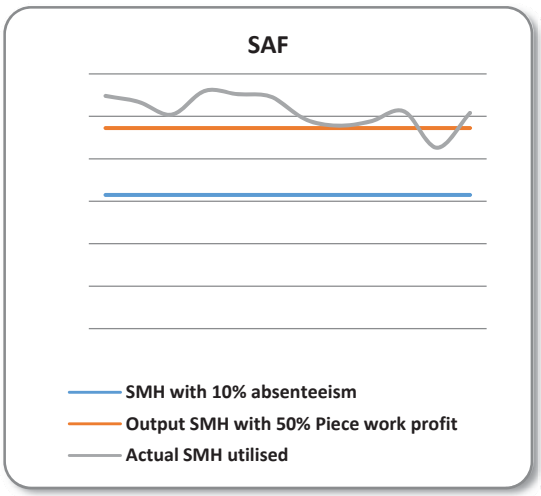
(Referred to in Paragraph 7.2.3.6)

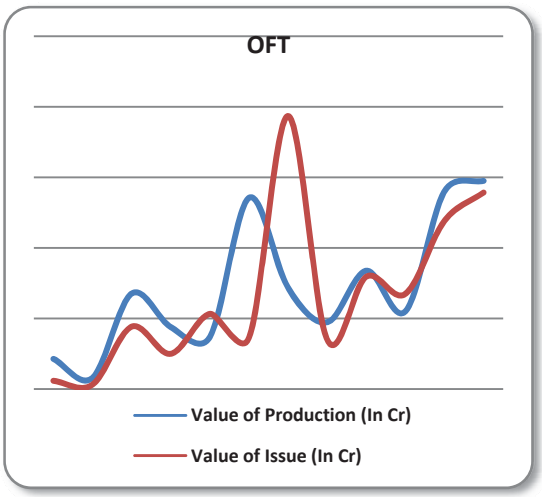
Value of Production/Issue *vis-a-vis* SMH Utilisation

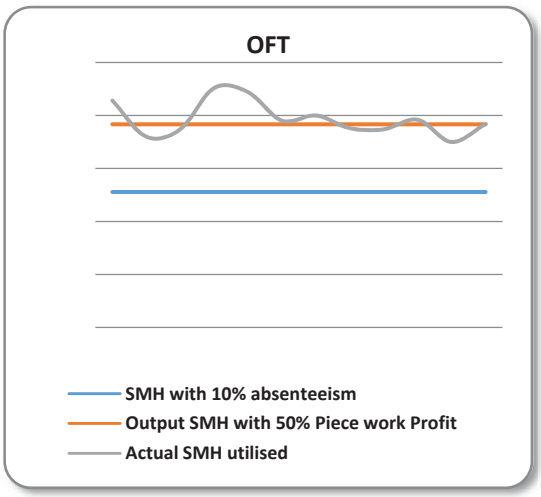


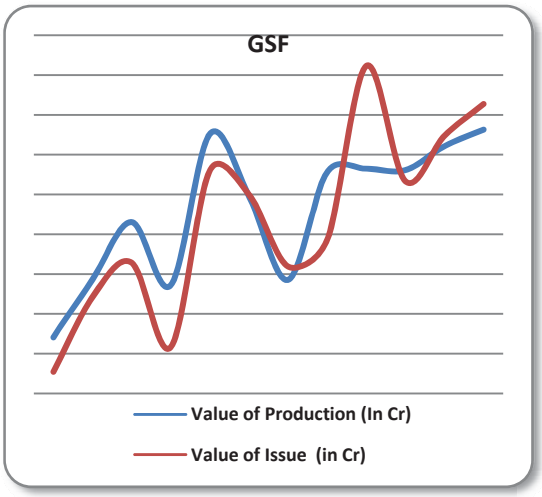


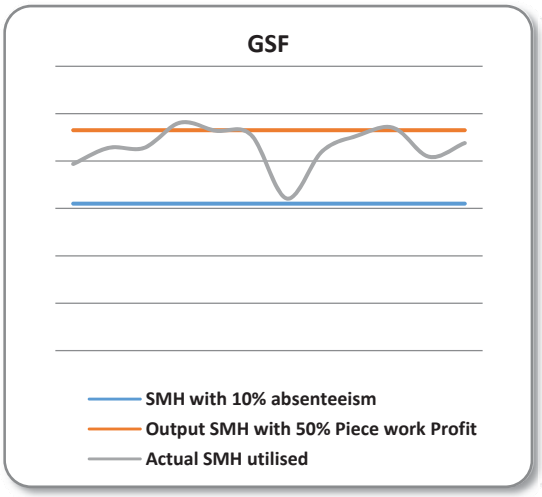


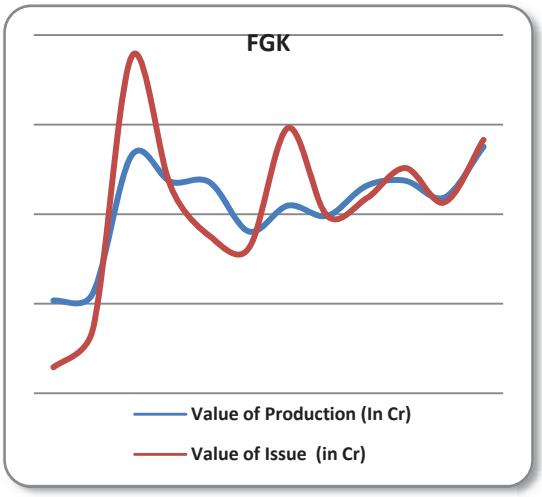


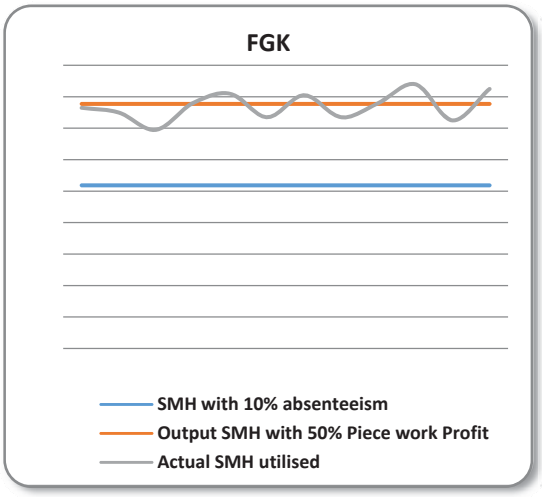


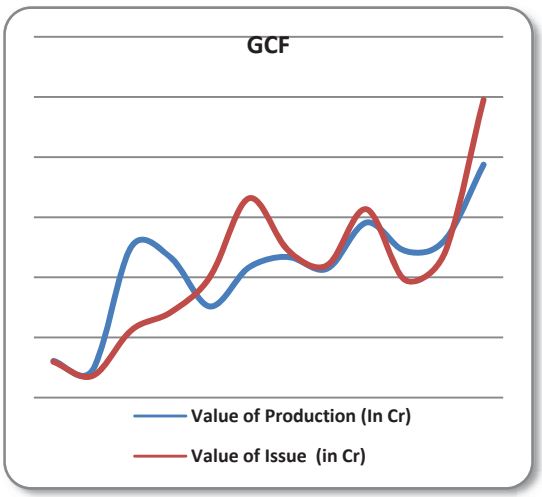


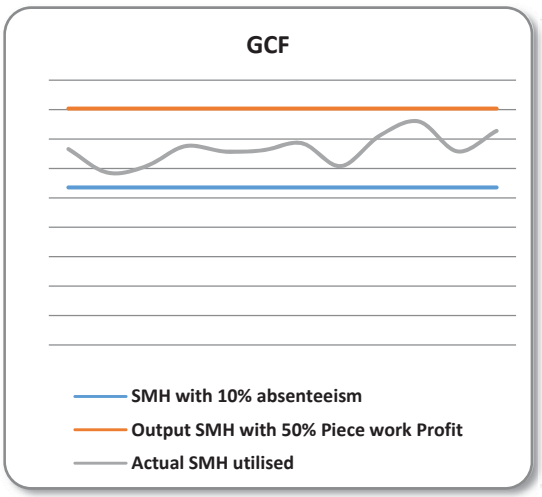












(Source: Value of production /issue and SMH available/ utilised at six weapon factories as furnished by OFB, Annual Accounts Vol-I)

ANNEXURE-XXI

(Referred to in Paragraph 7.2.4.3)

Case Study 1: Quality of 5.56mm Rifles manufactured in the Board

5.56mm Rifle- Fixed Butt accounts for 47, 28 and 30 *per cent* of the production in the Rifle Factory Ishapore, Small Arms Factory Kanpur and Ordnance Factory Trichy respectively during 2011-14.

RFR and Rejection of 5.56mm Rifle

Factory	RFR		Rejection	
	Incidence (in %)	Value (cr.)	Incidence (in %)	Value (cr.)
RFI	6[184]	35	1	4.83
SAF	11	22	24	57
OFT	16	30	1	2.8
Total		**87**		**64.63**

The SQAE registered RFR for 6-16 *per cent* of the Rifles valued at ₹ 87 crore during 2011-14. During the same period, Rifles worth ₹65 crore were rejected by the SQAE, with highest incidence of 24 *per cent* rejection by SQAE in SAF.

The RFR and rejection were attributed to jamming of components like the hammer[185] (linked to the trigger) and the breech block[186]; the stoppage of the moving parts of a barrel (over-riding); poor (trajectory of) ejection[187] of cartridge case after firing; blemishes in the barrel bore (the inner chamber of the barrel) and low rate of firing or erratic shooting; damage to various parts like piston extension, breech block, trigger guard etc.

The SQAE mentioned in the Quality Improvement Notes, defects such as deviations in the gauge of the barrel (in Rifle Factory Ishapore; 2011-12) and in material composition of the Flash absorber (that absorbs the "flash" while firing to prevent detection by the enemy) in SAF 2011-12. But repetitions of the defects were noticed. In 2013-14, the SQAE raised issues on breech block which were rectified by the Rifle Factory Ishapore.

In addition, the indentors(Army, Air Force & Para-military Forces)returned 456 rifles worth ₹1.3 crore during 2011-14 to Rifle Factory Ishapore, of which 323 rifles were found beyond economical repair. The complaints were that the barrel bore had developed bulges (which could damage the weapon) and that components were scratched or cracked. The Factory rectified these defects and re-issued the rifles to the indentors. Similarly, 70 rifles worth ₹23 lakh were returned by CRPF in 2011-14 to Small Arms Factory Kanpur because the barrel extension was found to be broken.

Quality issues raised at different "check-points" must grasp the attention of the Board considering this item continues, despite flagging demand from Army, one of the main items in the Board's production profile.

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[184]In addition, 4 *per cent* of the items , re-issued after rectification valued at ₹1.4 crore were again returned for RFR

[185]The hammer swings to impart a blow (impact) that will initiate a firing when the trigger is pulled

[186]With the pressing of the trigger, three rounds of the bullet move to the barrel and then the breech should close. If it doesn't close, the weapon can be damaged

[187]Deviations in ejection of the empty cartridge case could hurt the soldier

ANNEXURE-XXII

(Referred to in Paragraph 7.2.4.3)

Items wise incidence of RFR and Rejection

Item	Nature	Extent		Reasons
		Incidence (in percentage)	Value (₹ in cr.)	
Rifle Factory, Ishapore				
9mm Pistol	RFR	13	14	Poor ejection of empty cartridge case; breech not closed; jamming of slide[188]; no feed (of bullet from magazine)
	Rejection	3	3	
Small Arms Factory, Kanpur				
5.56mm LMG	RFR	14	11	Poor ejection of empty cartridge cases, erratic shooting, mal-functioning of breech, etc.
	Rejection	22	28	Functional defects in components (*viz*. breech block, piston extension, bracket, trigger, barrel extension), gauge deviation in plug gauge and Cartridge Head Spacing, blemishes in barrel bore, etc.
7.62mm Machine Gun	RFR	52	75	Poor ejection of cartridge cases, low rate of firing, erratic shooting, etc.
	Rejection	53	43	Functional defects in various components *viz*. ejector, trigger, back-sight, handle of the butt, crack in piston extension, etc.
9mm Carbine	RFR	16	5	Defects in components namely trigger, case, chamber of barrel and erratic shooting, etc.
	Rejection	19	6	Functional defects in trigger assembly, lever lock, muzzle support, ejector, breech block and cut mark/ scratch in barrel board, etc.
Ordnance Factory, Trichy				
40mm UBGL	RFR	8	4	Damage/ crack in barrel, body housing, erratic shooting, mal-functioning of components like safety catch, sear, recoil unit, breech, dimensional deviation in barrel bore and cartridge head spacing, poor accuracy, etc.
30mm Cannon	RFR	34	21	Dull chromium plating in gas cylinder, barrel, mal-functioning of barrel assembly, piston, feeding, safety lever, line/ pit/tool

[188]Movement of the slide in a pistol serves three functions: ejecting the empty cartridge casing, cocking the hammer or striker for the next shot, and loading another cartridge into the chamber when the slide comes forward

Item	Nature	Extent		Reasons
		Incidence (in percentage)	**Value (₹ in cr.)**	
				marks in barrel catch, squib holder and breech
12.7mm AD Gun	RFR	100	16	Mal-functioning/ defects in components *viz.* pin firing, safety lock, piston, bracket back side and poor painting/ polish in lock barrel, piston, link remover, sear etc. and dimensional deviation in ejector, regulator gas, plunger pin, tray feed assembly.
Gun Shell Factory, Cossipore				
84mm RL-Mark III	RFR 2011-12	19	2	Bulge in the sub-assembly of the barrel, deviations from specifications on "commencement of rifling "in the barrel
	2012-13	58	24	
	2013-14	66	21	
Gun Carriage Factory, Jabalpur				
105mm LFG	RFR	26	67	Restricted movement of the ammunition in the barrel, improper functioning of breech block
Spare Barrel T-72	RFR	9	20	Blemishes in the barrel bore
Spare Barrel T-90	RFR	63	21	Blemishes in the barrel bore
81mm Mortar	RFR	2	2	Blemishes in the barrel bore
Total: RFR (including 5.56mm Rifle)			390	
Total: Rejection (including 5.56mm Rifle)			145	
Field Gun Factory, Kanpur				
No data on RFR/rejection provided for the end products by the Factory and QAE(FG)				
Dimensional deviation in various components; bore of T-72 and T-90 barrel along with gap in breech (from where the ammunition is loaded) were noted in quality inspection notes. But repetition of same defects showed that corrective action was inadequate.				

(Source:** SQAE letters showing RFR and Rejections**)

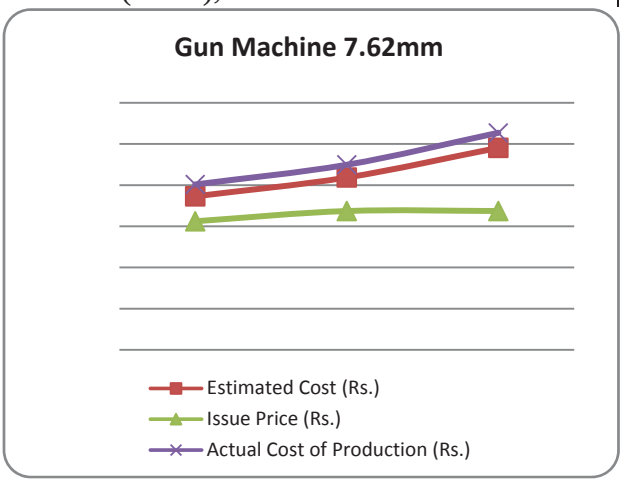
ANNEXURE-XXIII

(Referred to in Paragraph 7.2.5.2)

Factory-wise analysis of trends in profits

Small Arms Factory Kanpur

Six principal items in its product profile remained static during 2011-14. The 5.56mm Rifle, 5.56mm Light Machine Gun (LMG), 9mm Carbine and 7.62mm Medium Machine Gun (MAG) together account for 53 *per cent* of the production of items issued to the Army and MHA. Various classes of revolvers issued in civil trade are also an important part of the Factory's portfolio.



We noticed that the cost of labour exceeded the material cost in all principal products, except 5.56mm Rifle in 2012-13. In fact, the labour cost of 7.62mm MAG was 400 *per cent* of the material cost. The overheads was also high, particularly the fixed overheads, at levels between 51 *per cent* and 63 *per cent* for the six principal products. The 7.62mm MAG registered 60 *per cent* overheads in relation to cost of production. The Factory suffered losses due to the high labour and overhead costs, further compounded by conservatism in price fixation. For instance, the issue price of 7.62mm MAG was always fixed lower than the estimated cost by 16 to 31 *per cent* despite the actual cost exceeding the issue price by 29 to 56 *per cent.*

The Factory marked a steady decline in its main products: issue of 5.56mm Rifle decreased by 75 *per cent* and 9mm carbine by 62 *per cent* during 2011-14. The high production costs in 7.62 MAG and 9mm carbine made their production uneconomical. Profit ranging from ₹43,605 to 25,712 on each revolver in 2013-14 has kept the Factory afloat. Despite the high profits made on revolvers in civil trade, the Factory went into a loss of ₹13 crore in 2013-14, mainly, due to 30 *per cent* increase in cost (labour& overhead) of 7.62mm MAG and 9mm Carbine but fixing less issue price by the Board as compared to their estimated/actual cost.

Rifle Factory Ishapore

While Army's demand for the Factory's principal products (INSAS rifles and 9mm pistol) came down substantially, its products for civil trade have increased. The dip in profits in 2013-14 was because of 81 *per cent* reduction and 39 *per cent* reduction in quantum of issues of 5.56mm rifle- foldable butt and 5.56mm fixed butt respectively to the MHA. Despite a high demand for 9mm Pistol, problems in timely receipt of payments forced the Factory to reduce the issues to MHA by 35 *per cent* in 2013-14 as compared to 2012-13. The sustained demand and the margin in its sale of the 0.315" rifle marginally offset the shrink in demand and margins on other products.

Field Gun Factory Kanpur

The Factory is essentially an IFD Factory, with its products, the barrel, casing and ordnance being assembled into high calibre guns at the Gun Carriage Factory Jabalpur. There was a significant diversification of the product profile of the Factory, from nine principal items in 2011-12 to 19 and 22 in 2012-13 and 2013-14 respectively. The changes in the product profile, reveals a picture of a Factory in a flux. The Factory produced barrels for 120mm gun for MBT Arjun but the Board did not receive further indent beyond 124 MBT for which production came to a standstill since 2009-10. On the other hand, a new item where production started in 2012-13 and increased substantially in 2013-14, was barrels for indigenised version of the Russian Anti-Submarine Rocket Guided Bomb 60 (RGB 60), for catering to the needs of Indian Navy. However, the increase in the number of products did not bring in reduction of fixed overheads apportioned on the principal items.

Despite modest increase in issue price, the Factory clocked 66 *per cent* increase in profit over 2011-14. Sale of revolver 0.32" in civil trade accounted for 40 *per cent* of its profits in 2013-14.

Ordnance Factory Trichy

After an increase of profit by 33 *per cent* in 2012-13, the profit shrunk by 27 *per cent* in 2013-14. Apart from IFD items (30mm cannon for infantry combat vehicle BMP-II and 12.7mm Air Defence Gun) its main products are INASAS rifles, 40mm Under Barrel Grenade Launcher and sporting rifle. Item-wise cost of production, issue price and profit/loss are depicted below:

Items	INSAS Rifles (Army)	INSAS Rifles (MHA)	40mm UBGL	0.315" Sporting Rifle	30mm Cannon
2011-12					
Cost of Production	29757	29757	29473	35019	2932107
Issue Price	28710	30800	51710	43200	2726947
Profit/loss	**(-)1047**	**1043**	**22237**	**8181**	**(-) 205160**
2012-13					
Cost of Production	32600	32600	51745	13754	2529893
Issue Price	31007	33264	55400	43200	2972815
Profit/loss	**(-) 1593**	**664**	**3655**	**29446**	**442922**
2013-14					
Cost of Production	No Production	34482	55557	11776	3765225
Issue Price		35925	59832	47700	3207355
Profit/loss		**1443**	**4275**	**35924**	**(-) 557870**

The INSAS rifles were issued to the Army at a loss but the bulk of its production was for issue to MHA, with a significant profit margin. UBGL was priced 75 *per cent* higher than the cost in 2011-12. Although the cost of production rose by 89 *per cent* over 2011-14 and issue price increased marginally by average 7.9 *per cent* each year, the Factory continued to make profits on this item, mainly due to the high initial issue price. Another profit-earning item was 0.315" sporting rifle due to marginal increase in issue price and 66 *per cent* reduction in cost of production mainly in material (79%) and labour (66%) over 2011-14. The heavy loss on 30mm cannon was the largest contributor to the 27 *per cent* fall in profits in 2013-14. Despite eight *per cent* increase in the issue price in 2013-14 over 2012-13, the major factor for loss was 49 *per cent* increase in cost of production mainly due to 75 *per cent* increase in overheads and 49 *per cent* increase in labour.

Gun & Shell Factory Cossipore

The Factory reported the highest profits in the weapon group of Factories**.** Substantial profits in sale of 0.32" pistol buoyed the Factory: the profit being ₹41 crore, ₹43 crore and ₹57 crore in 2011-12, 2012-13 and 2013-14 respectively due to fixation of issue price at 125 *per cent* higher than the cost of production in 2011-12 followed by further eight *per cent* reduction in cost over 2011-14. Another product: the AK-630 gun was exported in 2011-12 under the offset[189] policy of the Government of India. The reduction in profits from ₹76 crore (2011-12) to ₹56 crore in 2012-13 was mainly because of earning profit of ₹19 crore against the offset exports in 2011-12. The Factory earned substantial profit every year in issue of 84mm RL (MK-III) to the Army due to fixing issue price higher than the estimated cost by 33 and 27 *per cent* during 2012-13 and 2013-14 respectively. However, the Factory made losses in sale of AK 630 gun to the Navy during 2013-14 due to no change in issue price despite 11 and 21 *per cent* increase in estimated and actual cost of production. The Factory also suffered losses for the items issued to sister factories. Hence, overall profits fell marginally by 10 *per cent* to ₹47 crore in 2013-14.

Gun Carriage Factory Jabalpur

The Factory showed declining trend of profit from ₹ 35 crore (2011-12) to ₹15 crore in 2013-14. The number of principal items remained almost the same during 2011-14. The main products of the Factory are the (new) Kavach[190] modified rocket launcher (Navy), 105mm Light Field Gun, Spare Barrels for T-90 & T-72 Tanks, Gun Assembly of T-90 Tank, 81mm Mortar and 12.7mm Prahari (Navy).

Over 2011-14, the production of Spare Barrel T-90 was reduced by 52 *per cent*; the dip in production coupled with increase in cost of production by 13 *per cent*, led to loss on issue of T-90 barrels. The production of 105mm LF Gun was also decreased by 19 *per cent* in 2012-13. In 2013-14, the cost of production rose significantly, across the product line, being 19 *per cent*, 15 *per cent* and 22 *per cent* in respect of 105mm Gun, Spare Barrel T-90 and Spare Barrel T-72 respectively. A substantial reduction of production in 105mm LF Gun: by 70 *per cent* helped to contain the loss on this item.

[189]Under the offset, a foreign seller is mandated to purchase some items from the buyer in return for the business

[190]**Kavach** is a naval decoy system to distract radar-guided missiles from their targets and act as a system for self-defence. The product is an indigenised version of the Russian Anti-submarine Warfare Rockets ("ASW"). The Kavach decoy system releases chaff made up of silver coated glass fiber. The chaff forms a clutter which remains suspended in the air so that the incoming guided missile confuses the chaff as the actual target and gets locked onto the chaff instead of the actual target. The chaff rockets are of three different ranges: from medium to long range.

ANNEXURE-XXIV

(Referred to in Paragraph 7.2.6.2)

Implementation status of development of new products

Items (Expected commencement of production)	Implementation status
(A) Small Arms	
5.56mm Rifle (Folding Butt) **(2008-09)**	Against Army's indent (2006) of 20,000 Rifles, Board offered the product in June 2012. Army gave bulk production clearance in October 2012. Citing delays in production, the Army short-closed the indent to 8454 in April 2011. RFI after having delivered 8454 rifles (2013-14), awaited further indent from the Army.
5.56mm Carbine (Joint venture protective) **(2009-10)**	Against Ministry's approval (2006) of demand, the carbine developed (October 2011) by the Board and DRDO was found unsatisfactory in the initial trial (October 2012) as it did not meet the laid down specifications of reliability and weight. After modification of design, next phase of trials was expected to be completed by May 2015. Delays in development and trials derailed the milestones of production indicated in the perspective plan.
5.56mm Carbine (Close Quarter Battle) **(2009-10)**	Mention was made in Paragraph 7.2 of Audit Report No. 12 of 2010-11 of the Comptroller and Auditor General of India about flawed decision to set up a Factory at Korwa for production of Carbines before finalisation of the product design. Production of the carbine was planned with transfer of technology (ToT) to the Board after global purchase by the Army. Army's request for proposals (RFP) of April 2007 and April 2008 were withdrawn twice (December 2007/June2009) due to change in scope of ToT and problems of global rights. Against the third RFP (2010), the offers were evaluated and trials conducted, but the purchase was yet to be finalised as the carbine was still in general staff evaluation as of March 2015. A new Factory built up at Korwa (Amethi) at an expenditure of ₹237 crore (March 2015) to produce the carbine, remained almost idle with production of 12 bore pump action gun valuing only ₹2.59 crore in 2013-14.
12.7mm Prahari **(2007-08)**	The production of the Prahari gun started in 2012-13 in Gun Carriage Factory Jabalpur. The Factory achieved 59 *per cent* of the targets during 2012-14 due to late receipt of formal indent from Navy.
(B) Medium Calibre Weapons	
30mm Automatic Grenade Launching System **(2010-11)**	Ordnance Factory Trichy undertook development of the item through reverse engineering in 2008. During demonstration trials (December 2008), frequent stoppages after sustained firing were observed. Five prototypes were test fired during April 2010. After finalising specifications (Sept. 2013), fresh manufacture of three guns started in June 2014, which were planned to be test fired in-house in May 2015 and subjected to DGQA endurance test in July 2015. The Board stated (May 2015) that the developed weapons could not be proved due to non-availability of practice ammunition ex-import.

40mm UBGL **(2009-10)**	The Army placed (June 2009) an indent on Ordnance Factory Trichy, for 11,719 for phased issue during 2011-14. The production picked up with the achievement against targets from 64 *per cent* in 2011-12 to 97 *per cent* in 2013-14. The process of MAO (Micro Arc Oxidation) coating could not be stabilised for indigenous production of UBGL. Hence, a taskforce recommended (February 2012) hard anodised (HA) coating. Accordingly, OF Trichy produced UBGL with HA coating till 2013-14. The Board stated (May 2015) that the requirement of MAO coating was not envisaged any more as barrels coated with hard anodising met the stipulated life.
Anti-material rifle **(2009-10)**	The rifle meant for destroying tankers, oil installations, bunkers *etc*., of the enemy was developed (2005) in Ordnance Factory Trichy. MHA's order for 100 rifles was completed in 2008-09. No further indent was received from the Army or the MHA. Army decided not to bring the rifle into use as it did not meet the weight requirement.
AK-630 Gun **(2007-08)**	Gun and Shell Factory Cossipore commenced indigenous production since 2009-10 based on ToT from a Russian firm. Import continued for critical items including barrel till 2013-14. The Board stated (May 2015) that Gun & Shell Factory along with BEL and OF Medak indigenised 90 *per cent* of assemblies of the gun. Abnormal delay in indigenisation and deficient ToT contract led to continuous import of product supports. Details are discussed in **Annexure-XXV**
(C) High Calibre Weapons	
84mm Rocket Launcher **(2007-08)**	Gun and Shell Factory Cossipore commenced indigenous production since 2007-08 (with 75% imported product support) based on ToT from a Swedish firm. Import continued for critical items including barrel, sight system till 2013-14. The Board stated (May 2015) that development of indigenous barrel was expected by 2016. Delayed indigenisation due to non-transfer of design of 70% components of weapons and 50% components of telescopic sights derailed the targeted indigenise production. Details are discussed in **Annexure-XXV.**
130mm Up-gunning to 155mm **(2010-11)**	The project has not been successful so far partly due to ban on the Israeli firm, SOLTAM. Gun Carriage Factory Jabalpur produced two guns on trial basis in 2010-11 but the Army did not place any indent as of December 2014. The Board informed (May 2015) that users' trials of 130/155 up-gunning were expected from October 2015 onwards. Delayed development and trials affected induction of the gun in the Services.
155 gun up-gradation **(2010-11)**	The up-graded 155mm (45 calibre) gun 'Dhanush', developed in February 2012 and subjected to various demonstration and user's trials during 2012-15 performed satisfactorily. Although Army gave indent of 114 guns, it was still under confirmatory trials and bulk production clearance was awaited (May 2015). Delay of four years in development and trials derailed the envisaged timeline.
125mm Gun for T-90 Tank **(2008-09)**	The Russian firm, the original manufacturer did not share the material specification of the gun barrel in ToT for T-90 Tank which was the main hurdle in indigenisation. There were delays in decision making on alternatives by the Ministry which together led to import of 175 guns and manufacture of 125 guns with imported barrels (2007-13). There were slippages in production of spare barrels for T-90, achievement being 55-60 *per cent* in 2012-14 The execution of this project has already been commented in Paragraph 8.3.3 of Audit Report No. 35 of 2014. Details are discussed in **Annexure-XXV**.

ANNEXURE-XXV

(Referred to in Paragraph 7.2.6.3 and Annexure-X)

Case Study of ToT on AK 630gun, 84mm RL Mark-III and T-90 Tank

(A) Development of AK 630 gun

AK 630 gun mounted on ships, such as the Kolkata Class guided missile destroyers (being built by Mazgaon Dock Limited for the Indian Navy), is used as antiaircraft and antimissile defence. It consists of a cluster of six concentric barrels of 30mm bore with a firing rate of 4000 to 5000 rounds per minute with range of 4 to 5 km.

Based on the Ministry's decision (January 1995) for indigenous production of the gun through ToT from M/s Rosoboronexport, Moscow (M/s ROE), the Board concluded (May 2004) the ToT agreement along with import of 16 guns[191] at a total cost of ₹97 crore .The validity of the license was for 100 guns within 20 years.

The design documents were received by May 2006; another two years passed in translation of the documents. The contract on ToT was deficient as it did not cover 17 units of the guns involving 148 parts and equipment for proof testing of sub-assemblies of the gun, necessitating additional imports of equipment worth ₹2 crore.

The gun had 40 major sub-assemblies which involved two Factories and a defence PSU, being:

- Gun & Shell Factory Cossipore for manufacture of 24 sub-assemblies as well as assembly of the fully formed gun and its issue to the Navy;
- Ordnance Factory Medak for manufacture of three sub-assemblies *viz.* cradle, carriage and race ring; and
- Bharat Electronics Limited (BEL) for 13 sub-assemblies relating to electronics and elector-hydraulic/ pneumatic units.

The original plan was to start indigenous production by 2007-08. The Factory claimed (January 2015) indigenisation of 75 *per cent*, covering 31 assemblies including those in the domain of BEL. However, import continued for critical items including barrel. In all, import worth ₹155 crore was made for various components during 2011-14, for production of 19 guns.

The Board stated (May 2015) that Gun &Shell Factory along with BEL and OF Medak indigenised 90 *per cent* of assemblies of the gun.

[191] 6 fully finished (FF) Guns, 4 SKD and 6 CKD Guns, 3 group SPTA sets and non-standard (special) equipment

(B) Development of 84mm Rocket Launcher Mark III

84mm Rocket Launcher is a recoilless gun, primarily an antitank weapon but also suited for attacking armoured personnel carriers, machine gun posts and troops in the open. The Rocket Launcher is fired from the shoulders of a soldier; Mark III version was more compact (the gun being 60mm smaller) and lighter than its older version: 9 kg as against 15 kg in the Mark II version. Its most important features are the advanced telescopic sight and use of light materials in the barrel: a steel liner with a laminate of epoxy and carbon fibre.

The Mark III version was developed by M/s FFV Ordnance Sweden in 1985. After 17 years, in March 2003, the Army considered induction of 2000 rocket launchers and 24,000 ammunitions along with ToT at a total cost of ₹347 crore. The ToT agreement in February 2005 was for indigenous manufacture of:

- 84mm HEAT 551 ammunition at Ordnance Factory Khamaria;
- Rocket Launcher at Gun and Shell Factory Cossipore; and
- Telescopic sights at Ordnance Factory Dehradun.

In March 2005, the Board procured 100 sets of SKD (semi-knocked down) and 200 sets of CKD (completely knocked down) of the rocket launchers at a total cost of ₹19 crore from the firm (OEM) to give an impetus to the indigenisation. The documents were received by January 2006. These covered drawings in respect of 240 items. For remaining 168 items, the OEM had not transferred the designs (70 *per cent* components of weapon and 50 *per cent* components of telescopic sights[192]) since these were proprietary items from other firms. In addition, 78 *per cent* of the designs of the ammunition were also not transferred.

Three important assemblies *viz.* Barrel, Front sight and Aperture sight, constituting 41 *per cent* in terms of cost, have not been indigenised. The carbon filament required for barrel was not available locally and could not be imported either due to ban on import from the countries of origin (France and Japan). Use of barrel forgings with alternate carbon fibre produced in Metal and Steel Factory Ishapore (2006-09), was not successful. A project for indigenous development of the barrel with the DRDO was undertaken at a cost of ₹83 lakh during 2010-11, and Gun & Shell Factory incurred ₹3 crore. A Failure Analysis Board reported (January 2013) problems with manufacturing practices, quality of materials being used, surface preparation of liner and other design flaws.

Against an indent of 1489, Gun& Shell Factory Cossipore produced 1782, mainly, with import of components worth ₹121 crore from the OEM during 2011-14.The Board claimed 59 *per cent* indigenisation of as of March 2014. Quality problems with regard to "unpredictable firing results in accuracy firing" were also reported.

[192] The front sight and the aperture sights with the illuminating point

In a parallel programme, the DRDO was in the process of a developing a light weight weapon equivalent to the 84mm RL Mark III since periods prior to 2000. Trials held in 2012 were not successful and further modifications were carried out by the Gun &Shell Factory.

The Board stated (May 2015) that development of indigenous barrel was expected by end of 2016.

(C) Indigenous production of T-90 tanks: *Extracts from Audit Report No: 35 of 2014*

The Transfer of Technology for indigenous production of T-90 tank was marred by delays in translation of design documents and the Russian firm's failure to share designs on critical assemblies like the gun assembly. The problem was compounded by delays in decisions on alternative solutions on these designs. A case in point is the DGQA thwarting the proposal by the Ordnance Factories for using "modified chemistry" proposed for the barrel for T-90 tank. This was despite the fact that the Factories had experience with "modified chemistry" for barrel of T-72 tanks (precursor to T-90 tank); the T-72 and T-90 tank use similar gun barrel. Impact of delays was mitigated by fresh import of T-90 tanks (and kits) from the very same firm in November 2007 worth ₹4913 crore, which was unjustified given the production profile of MBT Arjun (production began to keep pace with the planned schedules by 2005-06) and the inexplicable delays in decision-making on the issues of T-90 tank production. In addition, ₹2372 crore was spent on import of critical assemblies/components of T-90 tank, which formed 62 *per cent* of the total cost of indigenous production of T-90 tanks.

ANNEXURE-XXVI

(Referred to in Paragraph 7.2.6.3)

Challenges and Opportunities

	Item Value of Issue (₹in crore)	Challenges & Opportunities
Rifle Factory Ishapore		
1.	5.56mm Rifle Fixed Butt 2011-12 = 184 2012-13 = 191 2013-14 = 124	**Capacity:** A significant backlog from past indents in 2010-11, led to capacity shortages during 2012-14. **Quality**: Problems due to jamming of components like hammer, breech block, poor ejection, blemishes in barrel bore, low rate of firing or erratic shooting, damage to various parts like piston extension, breech block, trigger guard etc. **Demand:** Since Army currently has adequate quantity of rifles in stock for next 7-8 years, the Factory finds itself short of work, with only MHA as its sole client for this item. **Challenge**: Army nominated the Board as the Nodal Production agency for the Multi Role Assault Rifle. RFI developed 'Export Model of 5.56mm Excalibur Rifle MK-I', its trial evaluation was carried out by various State Police Organisations. However, substantial orders are yet to be received. Only 1852rifles were supplied to Assam Rifles and four SPOs.
2.	5.56mm Rifle Foldable 2011-12 = 11 2012-13 = 37 2013-14 = 36	**Demand**: Army's indent for 20000 Rifles was short-closed to 8454 in April 2011 due to delay in production. Demand from MHA was reduced in 2013-14. Further, the State Police Organizations did not lift the weapons because of non-availability of funds resulting in huge blocked inventory, *e.g.* AP Police could not lift 6743 Rifles (₹33 crore) during 2013-14.
3.	Pistol Auto 9mm 2011-12 = 26 2012-13 = 33 2013-14 = 2	**Capacity:** Requirements was in excess of the capacity by 46% to 83% during 2011-14. **Demand**: No fresh indent from Army received so far. Army intimated (December 2013) that it was no longer viable. Most of the state/central police forces bought Glock Pistol and there was decrease in demand for 9mm Pistol from MHA. Moreover, MHA felt that the price of 9mm Pistol was on the higher side, which forced the Factory to cut the price. **Quality**: 3% rejection during 2011-14 mainly due to poor ejection of empty cartridge case, breech not closed, jamming of slide, *etc.* **Opportunity**: The Board has approached MHA to procure Glock Pistol with clause for ToT for production. However, till such time, there will be under-utilisation of capacity created for 9mm Pistol. The continued import of pistols by MHA is a source of worry for the Board.
	Total Value of Principal Products (**% of total issues of factory)**	2011-12 = 221 (72%) 2012-13 = 261 (71%) 2013-14 = 162 (46%)
Small Arms Factory Kanpur		
1.	Gun Machine 7.62mm 2011-12 = 8 2012-13 =10 2013-14 =9	**Capacity**: Indentors' requirement (578 to 1500 nos during 2010-13) was beyond the capacity of the factory (300 nos). **Demand**: Army's roll-on requirement of 500 guns (approx.) per year assured but only an indent for 781guns in April 2011 with no further indents. **Quality:** 53% rejection (₹43 cr.) mainly due to low rate of firing. SAF was unable to supply a single gun to Army against indent of April 2011 till March 2014. **Challenge**: Once the quality issues are sorted out, this weapon and its spares may find sustained demand.
2.	Rifle 5.56mm Fixed Butt 2011-12 =72 2012-13 =61 2013-14 =16	As discussed against sl. no 1 of RFI
3.	5.56mm LMG 2011-12 =20 2012-13 =19 2013-14 =37	**Capacity:** Target of 2013-14, 10620 in number, was 133 % of the capacity. **Demand**: Demand from Army/MHA is consistent. SAF needs to address quality issues of the weapon. **Quality**: Rejection of 22% (₹57 crore) during 2011-14 which was quite high.
	Total Value of Principal Products (**% of total of issues of factory)**	2011-12 =101 (51%) 2012-13 =90 (47%) 2013-14 =62 (34%)

	Item **Value of Issue (₹in crore)**	**Challenges & Opportunities**
Ordnance Factory Trichy		
1.	5.56mm Rifle Fixed Butt 2011-12 =73 2012-13 =63 2013-14 =13	As discussed against sl. no 1 of RFI
	Small arms as % of total issues of the factory	**2011-12 =38%** **2012-13 =33%** **2013-14 =8%**
Medium Calibre weapons		
1.	40mm Under Barrel Grenade Launcher 2011-12 =13 2012-13 =22 2013-14 =42	**Capacity:** Targets in the range of 267% to 483% of capacity (1500 nos) during 2011-14. In view of the increased demand, capacity of the factory needs to be enhanced. **Quality:** The main constraint is MAO (micro-arc oxidation) coating of barrels, to prevent metallic fouling. Establishment of MAO coating facility was yet to come up. The Board stated (May 2015) that the requirement of MAO coating was not envisaged any more as barrels coated with hard anodising met the stipulated life. **Opportunity**: There is demand for the product from the Army and the MHA. Further, an option of fitting the UBGL with TAVOR Assault Rifle was being explored.
2.	30mm Canon for the combat vehicle BMP 2011-12 = 22 2012-13 = 25 2013-14 = 23	**Dependence on import:** An issue on the springs (a hot rolled spring with special material) of the gun remained unaddressed, which is a perennial import item from the Russian firm, M/s ROE. Alternatives from local trade sources were rejected in inspection. The Board (May 2015) told us that the springs had since been indigenized and the problem resolved. **Challenge**: The Factory incurred loss in production of this item especially in 2013-14 with a 49 *per cent* increase in cost of production over the year 2012-13.
3.	12.7mm Air Defence Gun 2011-12 = 6 2012-13 = 4 2013-14 = 6	**Capacity:** Despite capacity to produce 120 guns annually and target of 50,100 and 150 guns respectively in the three years 2011-14, OFT produced 91, 40 and 60 guns respectively. **Opportunity**: Several options have been explored for the use of the gun: by mounting on helicopter (CGHQ). BEML had placed order for 200 guns for the Remote Controlled Weapon Systems. The Army was also proposing for mounting the gun on Maruti Gypsy.
	Total Value of medium caliber products (**% of total issues of the fys.)**	**2011-12 = 42 (22%)** **2012-13 = 51 (26%)** **2013-14 = 71 (28%)**
Gun & Shell Factory Cossipore		
1.	AK-630 Gun 2011-12 =66 2012-13 =50 2013-14 =21	**Demand**: Targets (15, 18 and 15 nos) were higher than the capacity (10 nos) during 2011-14. However, achievement was less (4, 5 and 10 nos) during 2011-14. **Challenge**: 27 out of 40 major assemblies were to be indigenized by OFB by June 2012 against ToT of May 2006. Only 19 assemblies were indigenized up to January 2015 (67% by value). The Factory still relies on import for the remaining assemblies.
	Total % of value of issues of factory	**2011-12 =16%** **2012-13 =11%** **2013-14 =4%**
	High Calibre Guns	
Gun & Shell Factory Cossipore		
1	84mm Rocket Launcher MK-III 2011-12 =92 2012-13 =90 2013-14 =82	**Capacity**: Targets of 2300 and 2800 nos for the year 2011-12 and 2012-13 were in excess of the capacity (1800 nos). Achievement lower than capacity: 612 to 806 during 2011-14. **Quality**: High incidence of RFR: 19% in 2011-12, 58% in 2012-13 and 66% in 2013-14 mainly due to bulge in the sub-assembly of the barrel, deviations from specifications on "commencement of rifling" in the barrel. **Challenge**: Due to non-receipt of ToT from the Swedish manufacturer, three important assemblies *viz.* Barrel, Front sight and Aperture sight were not indigenised. The Factory had to import these components worth ₹168 crore during 2011-14. Factory's attempt for in-house development of barrel is yet to be successful.
	Total % of value of issues of factory	**2011-12 =22%** **2012-13 =21%** **2013-14 =16%**

	Item **Value of Issue (₹in crore)**	**Challenges & Opportunities**
Gun Carriage Factory Jabalpur		
1.	81mm Mortar with CES* 2011-12 =18 2012-13 =23 2013-14 =35	**Demand:** Army projected substantial reduction of demand in the Roll-on plan: from 150 nos annually for 2011-13 to 25 nos annually from 2013-16. **Challenge**: Production capacity is 150 per annum. The Factory is essentially assembling the product with most of the components being manufactured by GSF; hence, the product would be shifted to GSF from 2015-16. There will be idle capacity at GCF from 2015-16 onwards.
2.	105mm Light Field Gun 2011-12 = 133 2012-13 = 108 2013-14 = 34	**Demand**: Production capacity is 34 nos per annum. In Roll-on Plan, Army projected annual requirement of 30 LFGs from 2013-14 onwards. But indent of only 8 guns was received in 2013-14. **Quality**: High incidence of RFR 26% (₹ 67 crore) during 2011-14 mainly due to restricted movement of the ammunition in the barrel, improper functioning of breech block.
3.	Spare Barrel for T-72 tank 2011-12 = 48 2012-13 =101 2013-14 =100	**Quality**: Besides RFR of 9% during 2011-14, there were several incidents of barrel burst. An investigation revealed that specifications provided in the ToT, needed to be changed. **Challenge:** Inadequate capacity of MSF in supplying the forgings for the barrels was main constraint in production of T-72 barrels at OFC and FGK. Issue of spare barrel to Army was held up during 2013 due to damage of firing butt at LPR thereby badly affecting the proof.
	Total Value of Products (**as % of total issues of factory)**	**2011-12 = 199 (36%)** **2012-13 = 233 (52%)** **2013-14 = 169 (33%)**

ANNEXURE-XXVII

(Referred to in Paragraph 7.3.1.4)

Cordite Factory Aruvankadu	High Explosive Factory Kirkee	Ordnance Factory Bhandara	Ordnance Factory Itarsi
(i) 105 mm IFG/NC (ii) Charge INC for Cartg 130mm FVC (iii) Prop for 130mm RVC (iv) Auxiliary Ignitor for cartg 130mm FVC (v) Prop for SPA II (vi) Prop for SPA III (vii) Prop for AK 100 Naval (viii) Prop NQ/M for cartg 120M (ix)) Loose Prop NQ/M 254 for cartg 130mm FVC	(i) Slab Demolition (ii) Aug for 81mm (iii) Aug for 120mm (iv) PEK (v) TNT (vi) DNR (vii) DNT flakes (viii) Intermediate products viz Lead Styphnate, Basic Lead Az, HNS, Lead Azide, Mercury Fulminate, Composite Explosive and Tetrazene	(i) Charge M4A2 (ii) Tear Gas (iii) Cord detonating (iv) KBS naked (v) NGB 204, (vi) NGB 221 (vii) NGB 241 (viii) 30mm BMP-II (ix) NC-1066 (x) NC- 688 (xi) Prop 68MM SNEB (xii) ME 305 and (xiii) Hexolite A (xiv) PFFC (xv) RDX/TNT 60:40 A (xvi) RDX/TNT 60:40 B (xvii) RDX/WAX 88:12 (xviii)RDX/WAX 95:5 (xix) Hexolite B	(i) Charge INC for cartg 130mm RVC (ii) Prop for 130mm FVC (iii) Akash S propellant (iv) Akash B propellant (v) SD-122 for 155mm ERFB (BB) (vi) Ball powder for 5.56mm (vii) Ball powder 7.62mm (viii) Ball powder for A-7 (ix) Pinaka propellant (x) Picrite/NIGU (xi) Rifle Blend NC (xii) Charge 8

ANNEXURE-XXVIII

(Referred to in Paragraph 7.3.2.4 and 7.3.2.5)

Showing the Achievement of Chemical Factories during 2011-14 (March Achievement)

Sl No	Name of the item		Original	Revised Target (RT)	Issue	Shortfall	Percentage of	
			Target			w.r.t. RT	shortfall	Achievement
				2011-12				
	OFBa							
1	M4A2 Charge	Nos	15000	29603	580	-29023	98.04	1.96
2	Tear Gas	Tonne	**10**	**10**	10	0	0.00	100.00
3	Cord detonating	Metres	526000	526329	506515	-19814	3.76	96.24
4	KBS naked	Numbers	**0**	2500	1452	-1048	41.92	58.08
5	NGB 204	MT	72	72	85.83	13.83	-19.21	119.21
6	NGB 221	MT	40	112.7	67.5	-45.2	40.11	59.89
7	NGB 241	MT	20	67	40	-27	40.30	59.70
8	30mm BMP-II	MT	53	64	24	-40	62.50	37.50
9	NC 1066	MT	100	125	84	-41	32.80	67.20
10	NC 688	MT	22	30	30	0	0.00	100.00
11	RDX/TNT 60:40 A	MT	211	266	64.5	-201.5	75.75	24.25
12	RDX/TNT 60:40 B	MT	316	388	119	-269	69.33	30.67
13	RDX/WAX 88:12	MT	101	149.5	81	-68.5	45.82	54.18
14	RDX/WAX 95:5	MT	57	57	0	-57	100.00	0.00
15	Hexolite A	MT	0	27	0	-27	100.00	0.00
16	Hexolite B	MT	148.5	150	109	-41	27.33	72.67
17	Prop 68MM SNEB	Nos	6000	6000	3414	-2586	43.10	56.90
18	ME 305	MT	7.3	9.5	6.66	-2.84	29.89	70.11
19	PFFC	Tonne	21	15	5	-10	66.67	33.33
	OFI							
20	105mm IFG NC	Nos	45000	50500	40000	-10500	20.79	79.21
21	Prop 130mm RVC	Nos	67000	80000	72000	-8000	10.00	90.00
22	Picrite	MT	360	500	400	-100	20.00	80.00
23	Ball Powder 5.56mm	MT	490	515	486.47	-28.53	5.54	94.46
24	Ball Powder 7.62 mm	MT	100	150	119.31	-30.69	20.46	79.54
25	Ball Powder AK 47	MT	20	20	8.005	-11.995	59.98	40.03
26	SD 122 for 155mm ERFB	Nos	15000	20000	20460	460	-2.30	102.30
27	Pinaka	Set	1100	1500	1416	-84	5.60	94.40
28	Akash B	Nos	8	8	4	-4	50.00	50.00
29	Akash S	Nos	80	80	44	-36	45.00	55.00
30	Rifle Blend	Nos	0	0	0	0	0	0
31	Charge 8	Nos	2000	200	200	0	0.00	100.00

	HEF							
32	TNT/TNT spl	MT	2677	3030	2784	-246	8.12	91.88
33	Slab Demolition	Nos	332740	293398	294709	1311	-0.45	100.45
34	CE 14/100	MT	89.65	112	62	-50	44.64	55.36
35	HNS	Kgs	1036	1490	1160	-330	22.15	77.85
36	PEK	MT	7.316	7.316	12.881	5.565	-76.07	176.07
37	DNT flake	MT	139	139	147	8	-5.76	105.76
38	Aug Charge for 81mm	Nos	0	0	0	0	0	0
39	Aug Charge for 120mm	Nos	0	0	0	0	0	0
	CFA							
40	105mm IFG NC	Nos	90000	110000	110000	0	0.00	100.00
41	130mm RVC	Nos	65000	69000	69000	0	0.00	100.00
42	Auxiliary Igniter for 130mm	Nos	20000	32059	22500	-9559	29.82	70.18
43	Charge INC for 130mm	Nos	20000	32059	22500	-9559	29.82	70.18
44	SPA II	Kgs	4135	6000	6000	0	0.00	100.00
45	SPA III	Kgs	13280	14000	14000	0	0.00	100.00
46	AK 100 Naval	Nos	0	0	0	0	0	0
47	Prop NQ/M 110 for 120M	Kgs	5000	6025	5500	-525	8.71	91.29
48	Loose Prop NQ/M 254	Nos	0	250265	249930	-335	0.13	99.87
				2012-13				
	OFBa							
1	M4A2 Charge	Nos	20000	15000	15008	8	-0.05	100.05
2	Tear Gas	Tonne	**16**	**16**	16	0	0.00	100.00
3	Cord detonating	Metres	1000194	600000	599810	-190	0.03	99.97
4	KBS naked	Numbers	2500	2500	2062	-438	17.52	82.48
5	NGB 204	MT	182.5	99	84	-15	15.15	84.85
6	NGB 221	MT	112.33	56	32.5	-23.5	41.96	58.04
7	NGB 241	MT	79.7	19.7	20	0.3	-1.52	101.52
8	30mm BMP-II	MT	68.03	68.03	49.9	-18.13	26.65	73.35
9	NC 1066	MT	100	100	84.9	-15.1	15.10	84.90
10	NC 688	MT	29.1	29.1	30.2	1.1	-3.78	103.78
11	RDX/TNT 60:40 A	MT	164.98	164.98	78	-86.98	52.72	47.28
12	RDX/TNT 60:40 B	MT	295.13	295.13	148	-147.13	49.85	50.15
13	RDX/WAX 88:12	MT	98.2	98.2	50	-48.2	49.08	50.92
14	RDX/WAX 95:5	MT	55.6	55.6	21.625	-33.975	61.11	38.89
15	Hexolite A	MT	15	15	4	-11	73.33	26.67
16	Hexolite B	MT	212.2	212.2	89	-123.2	58.06	41.94
17	Prop 68MM SNEB	Nos	7750	7750	4000	-3750	48.39	51.61
18	ME 305	MT	12.5	12.5	8.37	-4.13	33.04	66.96
19	PFFC	Tonne	37	37	20	-17	45.95	54.05
	OFI							
20	Picrite	MT	320	387	353.54	-33.46	8.65	91.35
21	Ball Powder 5.56mm	MT	488	488	419.66	-68.34	14.00	86.00

22	Ball Powder 7.62mm	MT	140	140	104.13	-35.87	25.62	74.38
23	Ball Powder AK 47	MT	63	63	55.545	-7.455	11.83	88.17
24	SD 122 for 155 mm ERFB (BB)	Nos	20000	10000	10230	230	-2.30	102.30
25	Pinaka Propellant	MT	1500	1500	1061	-439	29.27	70.73
26	Akash B	MT	8	8	8	0	0.00	100.00
27	130mm RVC	Nos	70000	66000	68000	2000	-3.03	103.03
28	105mm IFG NC	Nos	50000	80000	80000	0	0.00	100.00
29	130mm FVC	Nos	0	1000	1000	0	0.00	100.00
30	Rifle blend NC	Nos	0	24	24	0	0.00	100.00
31	Akash S	No	134	134	134	0	0.00	100.00
32	Charge 8	No	644	644	644	0	0.00	100.00
	HEF							
33	TNT/TNT spl	MT	2593	2593	1703	-890	34.32	65.68
34	Slab Demolition	Nos	125000	132500	141886	9386	-7.08	107.08
35	CE 14/100	MT	85	85	85	0	0.00	100.00
36	HNS	Kgs	1032	1032	1032	0	0.00	100.00
37	PEK	MT	6.588	6.588	12.136	5.548	-84.21	184.21
38	DNT flake	MT	139	139	121.8	-17.2	12.37	87.63
39	Aug Charge for 81mm	Nos	0	400000	200000	-200000	50.00	50.00
40	Aug Charge for 120mm	Nos	0	70000	16170	-53830	76.90	23.10
	CFA							
41	105mm IFG NC	Nos	100400	134900	104900	-30000	22.24	77.76
42	130mm RVC	Nos	80000	74000	74000	0	0.00	100.00
43	Auxiliary Igniter for 130mm	Nos	16000	20000	20030	30	-0.15	100.15
44	Charge INC for 130mm	Nos	16000	20000	20030	30	-0.15	100.15
45	SPA II	Kgs	4540	2000	2000	0	0.00	100.00
46	SPA III	Kgs	16320	16320	16320	0	0.00	100.00
47	AK 100 Naval	Kgs	0	7000	6045	-955	13.64	86.36
48	Prop NQ/M 110 for 120M	Kgs	34680	34680	34680	0	0.00	100.00
49	Loose Prop NQ/M 254	Nos	0	219620	219955	335	-0.15	100.15
				2013-14				
	OFBa							
1	M4A2 Charge	Nos	22000	15000	14084	-916	6.11	93.89
2	Tear Gas	Tonne	10	10	10	0	0.00	100.00
3	Cord detonating	Metres	686900	446965	472830	25865	-5.79	105.79
4	KBS naked	Numbers	**2750**	**2750**	2745	-5	0.18	99.82
5	NGB 204	MT	160	120	120	0	0.00	100.00
6	NGB 221	MT	55.8	63	68	5	-7.94	107.94
7	NGB 241	MT	57.76	35	35	0	0.00	100.00
8	30mm BMP-II	MT	55.2	65	21.65	-43.35	66.69	33.31
9	NC 1066	MT	110	85	63	-22	25.88	74.12
10	NC 688	MT	25	28	26.8	-1.2	4.29	95.71

11	RDX/TNT 60:40 A	MT	91.55	85.24	88	2.76	-3.24	103.24
12	RDX/TNT 60:40 B	MT	184	192	171	-21	10.94	89.06
13	RDX/WAX 88:12	MT	98	70	64	-6	8.57	91.43
14	RDX/WAX 95:5	MT	21.8	42.8	37	-5.8	13.55	86.45
15	Hexolite A	MT	6	10	6	-4	40.00	60.00
16	Hexolite B	MT	180	180	181	1	-0.56	100.56
17	Prop 68MM SNEB	Nos	5000	7000	434	-6566	93.80	6.20
18	ME 305	MT	12.96	16.5	9.99	-6.51	39.45	60.55
19	PFFC	Tonne	0	18	8.9	-9.1	50.56	49.44
	OFI							
20	105mm IFG NC	Nos	77000	40000	39000	-1000	2.50	97.50
21	Pinaka	MT	1500	1500	1164	-336	22.40	77.60
22	Akash B	MT	0	50	0	-50	100.00	0.00
23	Propellant 130mm RVC	Nos	76000	64000	86200	22200	-34.69	134.69
24	Picrite	MT	524	425	425	0	0.00	100.00
25	Ball Powder 5.56mm	MT	420	432	432.54	0.54	-0.13	100.13
26	Ball Powder 7.62 mm	MT	100	128	128.16	0.16	-0.12	100.13
27	Ball Powder A7	MT	82	41	40.03	-0.97	2.37	97.63
28	SD 122mm 155mm	Nos	22000	2000	2046	46	-2.30	102.30
29	Akash S	MT	0	120	125	5	-4.17	104.17
30	Rifle Blend NC	Nos	0	0	0	0	0	0
31	Charge 8	Nos	900	900	900	0	0.00	100.00
	HEF							
32	TNT/TNT spl	MT	3123	1307	1648.95	341.95	-26.16	126.16
33	Slab Demolition	Nos	202147	78290	78290	0	0.00	100.00
34	CE 14/100	MT	70.4	36	42.5	6.5	-18.06	118.06
35	HNS	Kgs	285	1360	1179	-181	13.31	86.69
36	PEK	MT	12.18	12.397	11.509	-0.888	7.16	92.84
37	DNT flake	MT	154	154	156.45	2.45	-1.59	101.59
38	Aug Charge for 81mm	Nos	1500000	2400000	2400000	0	0.00	100.00
39	Aug Charge for 120mm	Nos	250000	250000	249934	-66	0.03	99.97
	CFA							
40	105mm IFG NC	Nos	134000	176500	174880	-1620	0.92	99.08
41	130mm RVC	Nos	70000	46756	38836	-7920	16.94	83.06
42	Auxiliary Igniter for 130mm	Nos	20000	15000	15030	30	-0.20	100.20
43	Charge INC for 130mm	Nos	20000	15000	15030	30	-0.20	100.20
44	SPA II	Kgs	6400	2000	7000	5000	-250.00	350.00
45	SPA III	Kgs	12900	12000	12000	0	0.00	100.00
46	AK 100 Naval	Nos	0	0	0	0	0	0
47	Prop NQ/M 110 for 120M	Kgs	34400	27000	27000	0	0.00	100.00
48	Loose Prop NQ/M 254	Nos	0	163025	163370	345	-0.21	100.21

Statement Showing the Achievement of Chemical Factories during 2011-14 (January Achievement)

Sl No	Name of the item		Original Target	Revised Target (RT)	Issue	Shortfall	Percentage of	
						w.r.t. RT	shortfall	Achievement
2011-12								
OFBa								
1	M4A2 Charge	Nos	15000	29603	0	-29603	100.00	0.00
2	Tear Gas	Tonne	10	10	10	0	0.00	100.00
3	Cord detonating	Metres	526000	526329	383385	-142944	27.16	72.84
4	KBS naked	Numbers	**0**	2500	915	-1585	63.40	36.60
5	NGB 204	MT	72	72	71.828	-0.172	0.24	99.76
6	NGB 221	MT	40	112.7	59.5	-53.2	47.20	52.80
7	NGB 241	MT	20	67	28	-39	58.21	41.79
8	30mm BMP-II	MT	53	64	20.5	-43.5	67.97	32.03
9	NC 1066	MT	100	125	63	-62	49.60	50.40
10	NC 688	MT	22	30	24	-6	20.00	80.00
11	RDX/TNT 60:40 A	MT	211	266	46.5	-219.5	82.52	17.48
12	RDX/TNT 60:40 B	MT	316	388	87	-301	77.58	22.42
13	RDX/WAX 88:12	MT	101	149.5	61	-88.5	59.20	40.80
14	RDX/WAX 95:5	MT	57	57	0	-57	100.00	0.00
15	Hexolite A	MT	0	27	0	-27	100.00	0.00
16	Hexolite B	MT	148.5	150	24	-126	84.00	16.00
17	Prop 68MM SNEB	Nos	6000	6000	2500	-3500	58.33	41.67
18	ME 305	MT	7.3	9.5	4.77	-4.73	49.79	50.21
19	PFFC	Tonne	21	15	5	-10	66.67	33.33
	OFI							
20	105mm IFG NC	Nos	45000	50500	40000	-10500	20.79	79.21
21	Prop 130mm RVC	Nos	67000	80000	60000	-20000	25.00	75.00
22	Picrite	MT	360	500	352	-148	29.60	70.40
23	Ball Powder 5.56mm	MT	490	515	368.46	-146.54	28.45	71.55
24	Ball Powder 7.62 mm	MT	100	150	87.61	-62.39	41.59	58.41
25	Ball Powder AK 47	MT	20	20	24.19	4.19	-20.95	120.95
26	SD 122 for 155mm ERFB	Nos	15000	20000	16368	-3632	18.16	81.84
27	Pinaka	Set	1100	1500	1107	-393	26.20	73.80
28	Akash B	Nos	8	8	0	-8	100.00	0.00
29	Akash S	Nos	80	80	21	-59	73.75	26.25
30	Rifle Blend	Nos	0	0	0	0	0	0
31	Charge 8	Nos	2000	200	200	0	0.00	100.00

Sl No	Name of the item		Original	Revised	Issue	Shortfall	Percentage of	
			Target	Target (RT)		w.r.t. RT	shortfall	Achievement
	HEF							
32	TNT/TNT spl	MT	2677	3030	2087	-943	31.12	68.88
33	Slab Demolition	Nos	332740	293398	181810	-111588	38.03	61.97
34	CE 14/100	MT	89.65	112	50	-62	55.36	44.64
35	HNS	Kgs	1036	1490	456	-1034	69.40	30.60
36	PEK	MT	7.316	7.316	4.98	-2.336	31.93	68.07
37	DNT flake	MT	139	139	108.15	-30.85	22.19	77.81
38	Aug Charge for 81mm	Nos	0	0	0	0	0	0
39	Aug Charge for 120mm	Nos	0	0	0	0	0	0
	CFA							
40	105mm IFG NC	Nos	90000	110000	88315	-21685	19.71	80.29
41	130mm RVC	Nos	65000	69000	42337	-26663	38.64	61.36
42	Auxiliary Igniter for 130mm	Nos	20000	32059	16342	-15717	49.03	50.97
43	Charge INC for 130mm	Nos	20000	32059	16342	-15717	49.03	50.97
44	SPA II	Kgs	4135	6000	6000	0	0.00	100.00
45	SPA III	Kgs	13280	14000	11000	-3000	21.43	78.57
46	AK 100 Naval	Nos	0	0	0	0	0	0
47	Prop NQ/M 110 for 120M	Kgs	5000	6025	0	-6025	100.00	0.00
48	Loose Prop NQ/M 254	Nos	0	250265	0	-250265	100.00	0.00
2012-13								
	OFBa							
1	M4A2 Charge	Nos	20000	15000	6911	-8089	53.93	46.07
2	Tear Gas	Tonne	16	16	9.48	-6.52	40.75	59.25
3	Cord detonating	Metres	1000194	600000	471000	-129000	21.50	78.50
4	KBS naked	Numbers	2500	2500	1541	-959	38.36	61.64
5	NGB 204	MT	182.5	99	36	-63	63.64	36.36
6	NGB 221	MT	112.33	56	28.5	-27.5	49.11	50.89
7	NGB 241	MT	79.7	19.7	12	-7.7	39.09	60.91
8	30mm BMP-II	MT	68.03	68.03	38.85	-29.18	42.89	57.11
9	NC 1066	MT	100	100	59.4	-40.6	40.60	59.40
10	NC 688	MT	29.1	29.1	23.7	-5.4	18.56	81.44
11	RDX/TNT 60:40 A	MT	164.98	164.98	55	-109.98	66.66	33.34
12	RDX/TNT 60:40 B	MT	295.13	295.13	109	-186.13	63.07	36.93
13	RDX/WAX 88:12	MT	98.2	98.2	39	-59.2	60.29	39.71
14	RDX/WAX 95:5	MT	55.6	55.6	19.125	-36.475	65.60	34.40
15	Hexolite A	MT	15	15	4	-11	73.33	26.67

Sl No	Name of the item		Original	Revised	Issue	Shortfall	Percentage of	
			Target	Target (RT)		w.r.t. RT	shortfall	Achievement
16	Hexolite B	MT	212.2	212.2	80	-132.2	62.30	37.70
17	Prop 68MM SNEB	Nos	7750	7750	0	-7750	100.00	0.00
18	ME 305	MT	12.5	12.5	6.75	-5.75	46.00	54.00
19	PFFC	Tonne	37	37	10	-27	72.97	27.03
	OFI							
20	Picrite	MT	320	387	255.54	-131.46	33.97	66.03
21	Ball Powder 5.56mm	MT	488	488	306.83	-181.17	37.13	62.88
22	Ball Powder 7.62mm	MT	140	140	72.09	-67.91	48.51	51.49
23	Ball Powder AK 47	MT	63	63	39.535	-23.465	37.25	62.75
24	SD 122 for 155 mm ERFB (BB)	Nos	20000	10000	8184	-1816	18.16	81.84
25	PinakaPropell	MT	1500	1500	704	-796	53.07	46.93
26	Akash B	MT	8	8	4	-4	50.00	50.00
27	130mm RVC	Nos	70000	66000	35520	-30480	46.18	53.82
28	105mm IFG NC	Nos	50000	80000	63000	-17000	21.25	78.75
29	130mm FVC	Nos	0	1000	1000	0	0.00	100.00
30	Rifle blend NC	Nos	0	24	24	0	0.00	100.00
31	Akash S	No	134	134	98	-36	26.87	73.13
32	Charge 8	No	644	644	644	0	0.00	100.00
	HEF							
33	TNT/TNT spl	MT	2593	2593	1173	-1420	54.76	45.24
34	Slab Demolition	Nos	125000	132500	116444	-16056	12.12	87.88
35	CE 14/100	MT	85	85	57	-28	32.94	67.06
36	HNS	Kgs	1032	1032	384	-648	62.79	37.21
37	PEK	MT	6.588	6.588	2.089	-4.499	68.29	31.71
38	DNT flake	MT	139	139	103.95	-35.05	25.22	74.78
39	Aug Charge for 81mm	Nos	0	400000	44160	-355840	88.96	11.04
40	Aug Charge for 120mm	Nos	0	70000	7504	-62496	89.28	10.72
	CFA							
41	105mm IFG NC	Nos	100400	134900	82295	-52605	39.00	61.00
42	130mm RVC	Nos	80000	74000	51180	-22820	30.84	69.16
43	Auxiliary Igniter for 130mm	Nos	16000	20000	16332	-3668	18.34	81.66
44	Charge INC for 130mm	Nos	16000	20000	16332	-3668	18.34	81.66
45	SPA II	Kgs	4540	2000	2000	0	0.00	100.00
46	SPA III	Kgs	16320	16320	12000	-4320	26.47	73.53
47	AK 100 Naval	Kgs	0	7000	0	-7000	100.00	0.00
48	Prop NQ/M	Kgs	34680	34680	34680	0	0.00	100.00

Sl No	Name of the item		Original	Revised	Issue	Shortfall	Percentage of	
			Target	Target (RT)		w.r.t. RT	shortfall	Achievement
	110 for 120M							
49	Loose Prop NQ/M 254	Nos	0	219620	0	-219620	100.00	0.00
2013-14								
	OFBa							
1	M4A2 Charge	Nos	22000	15000	6069	-8931	59.54	40.46
2	Tear Gas	Tonne	10	10	10	0	0.00	100.00
3	Cord detonating	Metres	686900	446965	298260	-148705	33.27	66.73
4	KBS naked	Numbers	**2750**	**2750**	2745	-5	0.18	99.82
5	NGB 204	MT	160	120	92	-28	23.33	76.67
6	NGB 221	MT	55.8	63	60	-3	4.76	95.24
7	NGB 241	MT	57.76	35	32	-3	8.57	91.43
8	30mm BMP-II	MT	55.2	65	16.5	-48.5	74.62	25.38
9	NC 1066	MT	110	85	60.5	-24.5	28.82	71.18
10	NC 688	MT	25	28	21.7	-6.3	22.50	77.50
11	RDX/TNT 60:40 A	MT	91.55	85.24	49	-36.24	42.52	57.48
12	RDX/TNT 60:40 B	MT	184	192	88	-104	54.17	45.83
13	RDX/WAX 88:12	MT	98	70	50	-20	28.57	71.43
14	RDX/WAX 95:5	MT	21.8	42.8	25	-17.8	41.59	58.41
15	Hexolite A	MT	6	10	4	-6	60.00	40.00
16	Hexolite B	MT	180	180	87	-93	51.67	48.33
17	Prop 68MM SNEB	Nos	5000	7000	310	-6690	95.57	4.43
18	ME 305	MT	12.96	16.5	3.51	-12.99	78.73	21.27
19	PFFC	Tonne	0	18	0	-18	100.00	0.00
	OFI							
20	105mm IFG NC	Nos	77000	40000	39000	-1000	2.50	97.50
21	Pinaka	MT	1500	1500	684	-816	54.40	45.60
22	Akash B	MT	0	50	0	-50	100.00	0.00
23	Propellant 130mm RVC	Nos	76000	64000	64000	0	0.00	100.00
24	Picrite	MT	524	425	380	-45	10.59	89.41
25	Ball Powder 5.56mm	MT	420	432	360.45	-71.55	16.56	83.44
26	Ball Powder 7.62 mm	MT	100	128	88.11	-39.89	31.16	68.84
27	Ball Powder A7	MT	82	41	40.03	-0.97	2.37	97.63
28	SD 122mm 155mm	Nos	22000	2000	2046	46	-2.30	102.30
29	Akash S	MT	0	120	83	-37	30.83	69.17
30	Rifle Blend NC	Nos	0	0	0	0	0	0
31	Charge 8	Nos	900	900	800	-100	11.11	88.89

Sl No	Name of the item		Original	Revised	Issue	Shortfall	Percentage of	
			Target	Target (RT)		w.r.t. RT	shortfall	Achievement
	HEF							
32	TNT/TNT spl	MT	3123	1307	1251.96	-55.04	4.21	95.79
33	Slab Demolition	Nos	202147	78290	34210	-44080	56.30	43.70
34	CE 14/100	MT	70.4	36	42.5	6.5	-18.06	118.06
35	HNS	Kgs	285	1360	1160	-200	14.71	85.29
36	PEK	MT	12.18	12.397	11.241	-1.156	9.32	90.68
37	DNT flake	MT	154	154	118.65	-35.35	22.95	77.05
38	Aug Charge for 81mm	Nos	1500000	2400000	1218360	-1181640	49.24	50.77
39	Aug Charge for 120mm	Nos	250000	250000	190025	-59975	23.99	76.01
	CFA							
40	105mm IFG NC	Nos	134000	176500	119180	-57320	32.48	67.52
41	130mm RVC	Nos	70000	46756	34816	-11940	25.54	74.46
42	Auxiliary Igniter for 130mm	Nos	20000	15000	9431	-5569	37.13	62.87
43	Charge INC for 130mm	Nos	20000	15000	9431	-5569	37.13	62.87
44	SPA II	Kgs	6400	2000	7000	5000	-250.00	350.00
45	SPA III	Kgs	12900	12000	10000	-2000	16.67	83.33
46	AK 100 Naval	Nos	0	0	0	0	0	0
47	Prop NQ/M 110 for 120M	Kgs	34400	27000	27000	0	0.00	100.00
48	Loose Prop NQ/M 254	Nos	0	163025	0	-163025	100.00	0.00

(Source :-*(i) Ordnance Factory Board letter Nos (i) 110/Prod/PX dated 23 February 2011, 5/10 January 2012 and 26 October 2012 for original targets (ii) Ordnance Factory Board letter Nos (i) 110/Prod/PX dated 20 May 2011,26 May 2011, 20 June 2012, 27 July 2012, 10/22 May 2013 and 21 March 2014 for revised targets (iii) Achievement report of the factory for the months of January 2012, 2013 and 2014 for January achievement and (iv) Achievement report of the factory for the months of March 2012, March 2013 and March 2014 for March achievement)*

ANNEXURE-XXIX

(Referred to in Paragraph 7.3.3.2)

Time taken for placement of TE from SHIS

Factory	Year	No. of SHIS against which TE issued	Time for issue of TE after preparation of SHIS (in months)					
			<1	1-2	3-5	6-8	>9	Total exceeding 1 month
CFA	2011-12	1129	5	687	269	29	2	987
	2012-13	671	129	300	46	22	15	383
	2013-14	636	100	256	68	25	36	385
OFI	2011-12	103	18	61	5	9	10	85
	2012-13	138	9	78	41	8	2	129
	2013-14	97	24	53	16	3	1	73
OFBa	2011-12	108	10	8	24	43	23	98
	2012-13	52	7	12	4	8	21	45
	2013-14	102	9	43	28	13	9	93
HEF	2011-12	454	45	89	153	84	83	409
	2012-13	504	119	107	194	63	21	385
	2013-14	320	109	99	76	25	11	211
Total	2011-12	1794	78	845	451	165	118	1579
	2012-13	1365	264	497	285	101	59	942
	2013-14	1155	242	451	188	66	57	762

***(Source:-**Supply Order Data- Base maintained by respective factories)*

ANNEXURE-XXX

(Referred to in Paragraph 7.3.3.2)

Time taken for placement of order from SHIS date

Factory	Year	Number of SHIS against which Supply orders placed	Time for placing supply orders after SHIS (months)			Total exceeding 6 months
			< 6	6-8	>9	
CFA	2011-12	1129	923	146	60	206
	2012-13	671*	538	100	32	132
	2013-14	636	434	77	125	202
OFI	2011-12	103	67	14	22	36
	2012-13	138	112	16	10	26
	2013-14	97	68	15	12	27
OFBa	2011-12	108	20	29	59	88
	2012-13	52	13	10	29	39
	2013-14	102	46	30	26	56
HEF	2011-12	454	163	125	160	285
	2012-13	504	246	174	73	247
	2013-14	320	155	94	55	149
Total	2011-12	1794	1173	314	301	615
	2012-13	1365	909	300	144	444
	2013-14	1155	703	216	218	434

* Nil Tender Enquiry date in one case in the database

(Source :-*Supply Order Data- Base maintained by respective factories)*

ANNEXURE-XXXI

(Referred to in Paragraph 7.3.3.2)

Time taken for clearance of stores in inspection

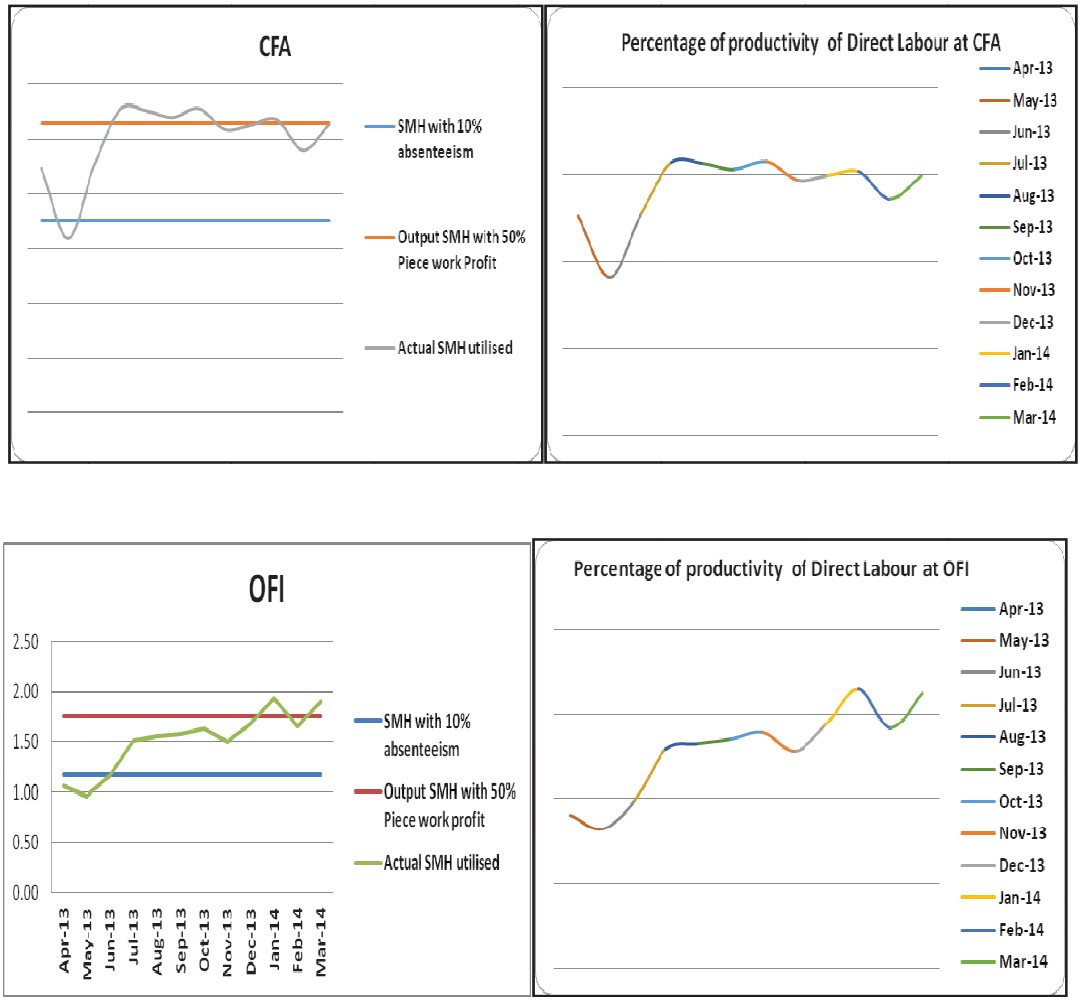
Factory	Year	Number of Receipt voucher examined	Time Taken (in days)					
			<16	16-30	31-60	61-90	>91	Total
CFA	2011-12	2133	1903	174	37	6	13	230
	2012-13	1861	1725	103	23	1	9	136
	2013-14	1488	1303	133	44	8	0	185
OFI	2011-12	639	566	65	8	0	0	73
	2012-13	473	410	61	1	0	1	63
	2013-14	471	325	125	19	0	2	146
OFBh	2011-12	3471	3041	302	117	7	4	430
	2012-13	3532	2954	446	109	16	7	578
	2013-14	4357	3608	522	172	35	20	749
HEF	2011-12	1666	1557	68	28	11	2	109
	2012-13	1287	1180	82	20	4	1	107
	2013-14	1148	971	144	24	2	7	177
Total	2011-12	7909	7067	609	190	24	19	842
	2012-13	7153	6269	692	153	21	18	884
	2013-14	7464	6207	924	259	45	29	1257

(*Source* :-*Receipt Voucher Data Base maintained by respective factories)***

ANNEXURE-XXXII

(Referred to in Paragraph 7.3.3.3)

(Showing the trend of Standard ManhourUtilised with 10 per cent absenteeism in respect of Cordite Factory Aruvankadu and Ordnance Factory Itarsi during 2013-14)



***(Source:** -Piece work Profit and Actual SMH utilisation Statement of the factories collected from Finance Section of Ordnance Factory Board)*

ANNEXURE-XXXIII

(Referred to in paragraph 7.3.4.3)

Instances of rejections at Ordnance Factory Bhandara

1. Three lots comprising 16MT propellant (out of 92.60MT produced) during the year) for 30mm BMP-II manufactured by the factory during 2011-14 at a total cost of ₹4.6 crore were rejected by the DGQA as the propellants failed to achieve the specified muzzle velocity and pressure during proof.

2. Out of 63MT produced during 2013-14, two lots comprising 21 tonne propellant NC 1066 (nitro-cellulose based propellant) manufactured at a total cost of ₹4.2 crore was rejected by DGQA as it failed in wool witch test, climatic hut test and accelerated ageing test for determination of shelf life of propellant.

3. Four lots comprising 16.68 tonne propellant NC 688 (nitro-cellulose based propellant) manufactured at a total cost of ₹3.9 crore was rejected by DGQA in 2013-14 as it failed in wool witch test, climatic hut test and accelerated ageing test for determination of shelf life of propellant.

ANNEXURE-XXXIV

(Referred to in paragraph 7.3.4.4)

Lead time for inspection Lead time in quality inspections

Time taken for proof (in days)	No. of lots where time>30 days
Propellant –NGB 221 Total no of lots: 42	
30-45	7
46-60	1
61-120	10
>120	1
Total lots	19
Propellant –NGB 204 Total no of lots: 89	
30-45	17
46-60	16
61-120	31
>120	17
Total lots	81
Propellant M4A2 Charge Total no of lots: 46	
30-45	13
46-60	8
61-120	6
>120	6
Total lots	33

(Source:** Data Base provided to Audit by Ordnance Factory Bhandara**)

ANNEXURE-XXXV

(Referred to in Paragraph 7.3.4.5)

Rejections in Ordnance Factory, Itarsi

1. Out of ten lots comprising 80,000 numbers of propellant for 105mm IFG NC manufactured during 2012-13, three lotscomprising 33,000 numbers valuing ₹ 10 crore, were rejected by the Controllerate of Quality Assurance Establishment (Ammunition) Kirkee between September 2012 and June 2013 owing to high Mean Deviation and unsatisfactory overall performance of propellants.

2. One lot comprising 8.015 tonne propellant of A-7 manufactured in 2013-14 (out of 43 tonne manufactured) at a cost of ₹ 0.66 crore was rejected by the Senior Quality Assurance Establishment (Armament) Varangaon as the velocity was not found to be within the prescribed limits;

3. One lot (132 grains) of Pinaka propellant out of 20 lots (with 1164 grains) manufactured during 2013-14 at a cost of ₹ 4.29 crore was rejected and advised for disposal, by Senior Quality Assurance Establishment (Military Explosive) Itarsi due to voids and cracks. Another lot comprising 62 sets manufactured at a cost of ₹2.18 crore in 2012-13 was also rejected by HEMRL in September 2012 as the propellant failed in ambient test.

4. One lot comprising 8.01 tonne of 7.62mm ball powder propellant (out of 17 lots comprising 119.31 tonne manufactured during 2011-12) valuing ₹ 0.55 lakh and issued to Ordnance Factory Varangaon was rejected by the filling factory. Another two lots comprising 15.995 tonne of 7.62mm ball powder propellant manufactured (out of 135 tonne manufactured) at a cost of ₹ 0.84 crore during 2010-11 and issued to the Ordnance Factory Varangaon was also rejected by the consignee.

5. Two lots comprising 16.02 tonne propellant for 5.56 mm ball powder (out of 68 lots comprising 486.47 tonne manufactured during 2011-12) valuing ₹ 97 lakh was rejected Ordnance Factory Varangaon due to its failure to meet the ballistic requirements as specified. The Factory told us that these two lots were rectified and re-issued to the filling factory

ANNEXURE-XXXVI

(Referred to in Paragraph 7.3.5.1)

(Showing the details of delays in procurement of machines)

I. Abnormal delay in replacement of TNT Plant.

The existing TNT Plant at HEF was procured in 1974-75 and commissioned in 1976-77. Regular production started in 1978. Due to continuous running and exposure to acidic fumes the plant is in a very bad condition. HEF took action in December 2002 for a new plant by approaching nine reputed plant suppliers. Only one firm M/s SWS, Defence AB, Sweden responded with budgetary quotation. But the offered plant was found to be technically inferior compared to the existing plant. Efforts to obtain a better technology plant were not successful as European and American companies have stopped production of TNT. In the meantime, HEF took action to keep the plant running by replacing some critical parts.

OFB constituted (September 2006) a committee to study and examine the physical condition of the plant, study technologies available, identify the critical areas needing replacement/revamping, identify suitable site and layout and suggest viable action plan for revamping/replacement on technical as well as economic considerations. The committee recommended setting up of a parallel nitration facility and revamping of washing and flaking buildings. HEF therefore raised a demand for replacement of TNT plant, reaction building along with construction of a new separate building to accommodate new plant at an estimated cost of ₹ 23.96 crore based on the budgetary offer received from M/s GEA process Engineering (India) Pvt. LTD, Vadodara in April 2008.The demand was approved by OFB in May-2009.

GTEs were issued twice in November 2010 and in Nov-2011 but order could not be finalized. TEC/OFB reviewed the technical specification prepared by factory and directed (July2012) to include NOx absorption tower to comply with pollution norms and re-tender the case.

Accordingly, HEF obtained budgetary quotation from M/s Nuberg, Noida for ₹47.59 cr. However, OFB approved estimated cost of ₹43.89 crore for TNT plant with NOx tower and new reaction building in October 2013.

We observed that specification of the proposed TNT plant is yet to be finalized. The Senior General Manager stated in October 2014 that the action for replacement of TNT plant was as per OFB approval and TNT requirement varies as per demand for sister factories.

Thus, due to abnormal delay in replacement of TNT plant, benefit of reduction of manpower, cost saving, improvement of productivity and reduction in

rejection could not be achieved. Besides delay in finalization of order there is cost overrun of ₹19.93 crore.

II Delay in replacement of DENSAC plant

The De-nitration and Sulphuric Acid Concentration (DENSAC) plant is used for carrying out two operations *viz*De-nitration of waste acid generated and Sulphuric Acid Concentration.

The existing plant was commissioned in 1954 at HEF and its present condition was dilapidated. The acceptance of necessity for procurement of DENSAC plant was raised by HEF in May 2008 which was approved by the OFB in October 2009 at an estimated cost of ₹48.03 crore.

GTE was issued against which two offers were received from (i) M/s Archivista, Pune in collaboration with M/s De-Dietrich, Germany and (ii) M/s Aker Solutions, Mumbai. The offer of M/s Aker was rejected by TEC-II/OFB and the resultant single offer of M/s Archivista and De-Dietrich was forwarded to MOD for approval. The Collegiate Committee Meeting held on 07-03-2012 decided to retender the case.

As some items were not included in the earlier budgetary quotation which was more than three years old and also there was rise in Euro value, revised estimated cost of ₹60.69 crore submitted to OFB in May 2012 and the same was approved by OFB in June 2012.

Against TE of September 2012, four firms submitted their quotation for supply of DENSAC plant. The technical bids were opened on 06-06-2013, Fy TEC-I recommended in November 2013 to all four firm's offer to OFB for negotiation and for opening of price bids. OFB intimated(December 2013) HEF to sort out certain ambiguous issues and assess the offers again. In line with OFB guidelines, TEC-I decided in February 2014 and recommended the offer of M/s Archivista, Pune. OFB however directed(April 2014) HEF to call the firms once again to sort out deviations /assess the capabilities of the firms.

Accordingly, HEF sorted out deviations to assess the capabilities of the firms. Meanwhile on factory's request, all the firms extended their offer up to November 2014.

Thus, due to delay in finalization of order there was cost overrun of ₹12.66 crore (₹60.69 crore - ₹48.03 crore) besides delay in finalization/ placement of order anticipated savings of ₹15.31 croreper annum could not be achieved.

ANNEXURE-XXXVII

(Referred to in Paragraph 7.3.5.3)

(Showing the trends of *cost* of production, overheads and profit/loss in issue of products during 2011-14)

(i) Trends of cost of production of four Chemical factories during 2011-14

HEF

Item of expenditure	2011-12	2012-13	2013-14
Cost of production (₹ in crore)	163.23	137.40 (-15.82 *per cent*)	161.16 (17.29 *per cent*)
FOH (₹ in crore)	49.93	62.55 (25.28 *per cent*)	27.61 (- 55.86 *per cent*)
VOH (₹ in crore)	11.61	6.90 (- 40.57 *per cent*)	37.02 (436.52 *per cent*)
TOH (₹ in crore)	61.54	69.45 (12.85 *per cent*)	64.63 (-6.94 *per cent*)
FOH as a percentage of CoP	30.59	45.52	17.13
VOH as a percentage of CoP	7.11	5.02	22.97
TOH as a percentage of CoP	37.70	50.54	40.10

CFA

Item of expenditure	2011-12	2012-13	2013-14
Cost of production (₹ in crore)	144.32	159.73 (10.68 *per cent*)	157.84 (-1.18 *per cent*)
FOH (₹ in crore)	67.77	71.88 (6.06 *per cent*)	73.23 1.88 *per cent*)
VOH (₹ in crore)	8.69	8.39 (- 3.45 *per cent*)	9.11 (8.58 *per cent*)
TOH (₹ in crore)	76.46	80.27 (4.98 *per cent*)	82.34 (2.58 *per cent*)
FOH as a percentage of CoP	47	45	46
VOH as a percentage of CoP	6	5	6
TOH as a percentage of CoP	53	50	52

OFBa

Item of expenditure	2011-12	2012-13	2013-14
Cost of production (₹ in crore)	191.64	207.22 (8.13 *per cent*)	257 (24.02 *per cent*)
FOH (₹ in crore)	85.74	85.64 (-0.12 *per cent*)	103.67 (21.06 *per cent*)
VOH (₹ in crore)	53.75	12.94 (- 51.74 *per cent*)	32.53 (25.44 *per cent*)
TOH (₹ in crore)	139.49	111.58 (-20.01 *per cent*)	136.22 (22.08 *per cent*)
FOH as a percentage of CoP	45	41	40
VOH as a percentage of CoP	28	13	13
TOH as a percentage of CoP	73	54	53

OFI

Item of expenditure	2011-12	2012-13	2013-14
Cost of production (₹ in crore)	217.20	216.87 (- 0.15 *per cent*)	252.54 (16.45 *per cent*)
FOH (₹ in crore)	86.35	95.46 (11 *per cent*)	101.94 (7 *per cent*)
VOH (₹ in crore)	16.23	18.74 (15.74 *per cent*)	23.79 (26.95 *per cent*)
TOH (₹ in crore)	102.57	114.20 (11.33 *per cent*)	125.73 (10.10 *per cent*)
FOH as a percentage of CoP	40	44	40
VOH as a percentage of CoP	7	9	9
TOH as a percentage of CoP	47	53	49

(ii) Trend of overheads with reference to Direct Labour

In the ordnance factories, overheads are levied as a percentage of direct labour. Thus, there is linear relation between FOH/VOH with Direct Labour. Audit Examination of the case reveals the following:

Factory	2011-12 (percentage Change over Previous Year)			2012-13 (percentage Change over Previous Year)			2013-14 (percentage change to Previous Year)		
	DL	**FOH**	**VOH**	**DL**	**FOH**	**VOH**	**DL**	**FOH**	**VOH**
HEF	30.76	134.19	-62.06	-9.54	25.28	-40.57	15.01	-55.86	436.52
CFA	13.09	13.35	24.86	17.27	6.06	-3.45	5.89	1.88	8.58
OFBa	15.76	18.52	5.60	18.00	-0.12	-51.74	17.88	21.06	25.44
OFI	24.79	12.26	-5.47	-13.42	10.55	15.47	21.84	6.79	26.95

(iii) Trends in profit/loss in issue of products (sampled items) to indentors

Factory	2011-12 (₹ in crore)		2012-13 (₹ in crore)		2013-14 (₹ in crore)	
	IFD Issue	**Direct to Indentors**	**IFD Issue**	**Direct to Indentors**	**IFD Issue**	**Direct to Indentors**
OFBa	-10.70	1.11	-0.69	5.87	4.80	6.18
OFI	23.12	0.02	0.69	27.38	-15.89	-0.65
HEF	-8.53	10.28	-31.73	-0.90	-3.63	-1.31
CFA	3.51	0	-1.79	0	-8.24	0
Total	7.40	11.41	-33.59	32.35	-22.96	4.22

(Source :-*Summary of Outturn Statement of each Factory collected from the Annual Account of Ordnance Factory Organisation for the years 2011-14)*

ANNEXURE-XXXVIII

(Referred to in Paragraph 7.3.6.2)

(Showing the consolidation of applicable environmental legislative framework)

1. Several national laws govern the activities of the factories with regard to environment. In addition, each State has its own laws. The national laws include:

I. The Water (Prevention and Control of Pollution) Act, 1974.
II. The Water (Prevention and Control of Pollution) Cess Act, 1977.
III. The Water(Prevention and control of Pollution) Cess (Amendment) Act, 2003.
IV. The Air (Prevention and Control of Pollution) Act, 1981.
V. The Environment (Protection) Act, 1986.
VI. The Hazardous Wastes (Management and Handling) Rules, 1989 as amended in 2000.
VII. The Manufacture, Storage and Import or Hazardous Chemical Rules, 1989 as amended in 2000.
VIII. The Public Liability Insurance Act, 1991.
IX. Emergency Planning Preparedness & Response For Chemical Accidents Rules, 1996.
X. The National Environment Tribunal Act, 1995.
XI. The Chemical Accident (Emergency Planning, Preparedness and Response) Rules 1996.
XII. The Recycled Plastics Manufacture and Usage Rules, 1999.
XIII. The Indian Boiler Act, 1923
XIV. The Gas Cylinder Rules, 1981 Fly Ash Notification, 1999.
XV. The Municipal Solid Wastes (Management and Handling) Rules, 2000.

2. The salient features of each Law are:

I. The Water (Prevention and Control of Pollution) Act, 1974

This Act provides for the prevention and control of water pollution and the maintenance or restoration of wholesomeness of water. As such, all human activities having a bearing on water quality are covered under this Act. Subject to the provisions in the Act, no person without the previous consent of the State Pollution Control Board (SPCB) can establish any industry, operation or process, or any treatment and disposal system or an extension or addition thereto which is likely to discharge sewage or trade effluent into a stream or well or sewer or on land and have to apply to the SPCB concerned to obtain the 'Consent to establish' as well as the 'Consent to operate' the industry after establishment.

II. The Water (Prevention and Control of Pollution) Cess Act, 1977

The main purpose of this Act is to levy and collect cess on water consumed by certain categories of industry specified in the schedule appended to the Act.

The money thus collected is used by the SPCBs to prevent and control water pollution.

III. The Air (Prevention and Control of Pollution) Act, 1981

The objective of the Air Act, 1981 is to prevent, control and reduce air pollution including noise pollution. Under the provisions of this Act, no person shall, without the previous consent of the SPCB, establish or operate any industrial plant in air pollution control area. The factory operator has to apply to the SPCB/ Pollution Control Committee (PCC) to obtain consent. No person operating any industrial plant shall emit any air pollutant in excess of the standards laid down by the SPCB and have to comply with the stipulated conditions.

IV. The Environment (Protection) Act, 1986

This is an umbrella Act for the protection and improvement of environment and for matters connected with it. It provides that no person carrying on any industry, operation or process should discharge or emit or permit to be discharged or emitted any environmental pollutant in excess of such standards as may be prescribed.

Several sets of rules relating to various aspects of management of hazardous chemicals, wastes etc. have also been notified. Under this Act, Central Govt. has restricted, prohibited the location in the industries and have also permitted processes discharge of liquid effluent and noise have been evolved and notified so far. The standards in respect of pollutants are to be achieved within a period of one year from the date of their notification, especially by those industries identified as highly polluting. However, if a particular SPCB desires, it may reduce the time limit and also specify more stringent standards in respect of specified category of industries within their jurisdiction. The SPCB, however, can not relax either the time limit or the standards stipulated by the GOI. Under Section 15, punishment, fine and imprisonment for the violation of the provision of this Act.

Subject to the provision of this Act, Central Govt. has the power to take all measures as it deemed necessary or expedient for the purpose of protection and improving the environment and preventing, controlling and abating environmental pollution.

Procedures, safeguards, prohibition and restriction on the handling of hazardous substances alongwith the prohibition and restriction on the location of industries and carrying on processes and operations in different areas have been notified. Restrictions have been imposed on various activities in fragile areas i.e. Doon Valley in U.P., Aravali Regions in Alwar, Rajasthan, Coastal zones and Ecologically sensitive zones etc. (MOEF, 1989 and 1992 a). Besides, Public Liability Insurance (PLI) Act, 1991 is constituted to provide immediate relief to the persons affected by accident occurring while handing any hazardous substance (MOEF, 1991 and 1992 b).

V. The Hazardous Wastes (Management and Handling) Rules, 1989 & 200

In nutshell, project proponents handling hazardous wastes must report to the concerned authorities in Form-I regarding handing of wastes, obtain authorization for handling wastes in Form-2, maintain proper records in Form-3, file annual returns in Form-4, label all packages, consignments etc., report any accident immediately in Form-5 report import-export of hazardous waste in Form-6 under HW Rules, 1989. Hazardous wastes have been categorized in 18 categories.

Recently, MOEF has notified the HW (M&H) Amendment Rules on January 6, 2000 (MOEF, 2000a). Under these rules toxic chemicals, flammable chemicals and explosives have been redefined to be termed as 'hazardous chemical'. As per new criteria, 684 hazardous chemicals instead of 4343 chemicals listed in HW Rules, 1989 have been identified. All the hazardous substances have been kept in 3 categories (i) Process specific industrial wastes, (ii) Waster substances with concentration limits and (iii) Waste applicable only for imports and exports. Authorization application shall be processed by the SPCB within 90 days. It will be valid for 5 years and its renewal will depend on steps taken for reduction in the waste generated, recycled or reused. Disposal sites for hazardous waste disposal shall be identified by the State Govt. operator of a facility or occupier. EIA is to be carried out for selecting the appropriate site. Public hearing for objections and suggestions has to be arranged by the SPCB within 30 days. SPCB will monitor the setting up and operation of a facility regularly. Operation and closure of landfill site is to be carried out as per Rule 8A by the SPCB. Import and export of hazardous waste for dumping and disposal is strictly prohibited. It is permitted only if raw material is used for recycling or reuse.

VI. The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 &2000 .

Under these rules, project proponents of any kind of hazardous industry have to identify likely hazard and their danger potential. They also have to take adequate steps to prevent and limit the consequences of any accident at site. Information regarding accidents is to be updated as per Schedule-7. Material Safety Data Sheets (MSDS) for all the chemicals in handling has to be prepared. Workers on site are required to be provided with information, training and necessary equipments to ensure their safety. On-site Emergency Plan is to be prepared before initiating any activity at the site. Off-site Emergency Plan is to be prepared by the District Collector in close collaboration with the Project proponents for any accident envisaged on site. The public in the vicinity of the plant should be informed of the nature of major accidents that may occur on site and the Do's and Dont's to be followed in case of such an occurrence. Import of hazardous chemicals is to be reported to the concerned authority within 30 days from the date of import.

Recently, MOEF has made significant amendments in the MSIHC Rules, 1989 on January 20, 2000. Under new amendments, new Schedule-I is incorporated with the increase in the number of hazardous chemicals. Renewal of Authorization will be subject to submission of 'Annual Returns' for disposal of hazardous waste; production of evidence of reduction in the waste generated or

recycled or reused; rulfilment of authorization conditions and remittance of processing and analysis fee. State Govt. as well as occupier or its association shall be responsible for the identification of site for common waste disposal facility. Public hearing is also made mandatory to be conducted by the State Govt. before notifying any common hazardous waste disposal site as per procedure laid down in Gazette Notification dated April 10, 1997 (MOEF, 1997; Rastogi, 1997a and 2000c). Central/ State Govt. will provide guidance for the design, operation and closure of common waste facility/ landfill site. It is mandatory to obtain prior approval from the SPCB for design and layout of the proposed hazardous waste disposal facility. Comprehensive procedure have also been laid down in the MSIHC Rules, 2000 for the regulation of export and import of hazardous wastes.

VII. Public Liability Insurance Act, 1991

This Act, unique to India, imposes on the owner the liability to provide immediate relief in respect of death or injury to any person or damage to any property resulting from an accident while handling any of the notified hazardous chemicals. This relief has to be provided on 'no fault' basis. The owner handling hazardous chemical has to take an insurance policy to meet this liability of an amount equal to its "paid up capital" or upto₹500 millions, whichever is less. The policy has to be renewed every year. New undertaking will have to take this policy before starting their activity. The owner also has to pay an amount equal to its annual premium to the Central Government's Environment Relief Fund (ERF). The reimbursement of relief to the extent of ₹25,000/- per person is admissible in case of fatal accidents in addition to the reimbursement of medical expenses upto₹12,500/-. The liability of the insurance is limited to ₹50 million per accident upto₹150 millions per year or upto the tenure of the policy. Any claims in excess to this liability will be paid from the ERF. In case the award still exceed, the remaining amount shall have to be met by the owner. The payment under the Act is only the immediate relief, owners shall have to provide the final compensation, if any, arising out of legal proceedings (MOEF, 1991 and 1992; Singh et al, 1994).

VIII. The National Environment Tribunal Act, 1995

The National Environment Tribunal Act, 1995 is enacted to setup legal institution across the country to provide for strict liability for damages arising out of accidents occurring during handling of hazardous substances and for establishment of National Environment Tribunal for effective and expunction disposal of cases arising from such accidents, with a view to giving relief and compensation for damages to person, property and the environment.

***(Source: -** Respective Environmental Acts of the Government of India)*

ANNEXURE-XXXIX

(Referred to inParagraph 8.1.2.2)

Details of Total population and Sample selected

(₹in crore)

Mfg Units / Divisions at	Number of Purchase orders	Value of purchase orders	Number of sample purchase orders	Value of Sample purchase orders
Bangalore	14,911	2,958.61	420	2,000.10
Mysore	23,691	1,908.31	390	1,063.71
Kolar Gold Fields	34,129	1,952.15	553	766.76
Marketing divisions	14,063	2,188.61	214	1,667.94
Total	**86,794**	**9,007.68**	**1,577**	**5,498.51**