

**Annexure-I**

(As referred in Para 1.6.2)

**A. List of Paras/Reports on which ATNs have not been received even for the first time from Ministry**

Sl. No	IAF/HAL	Report No./Year	Para No.	Title of the Report/Para	Money Value ₹ in crore	Date of laying in the Parliament
1.	IAF	10 of 2013	Stand Alone Report	Acquisition of helicopters for VVIPs	3726.96	13-08-13
2.	IAF	4 of 2014	2.1	Unfruitful expenditure on development of a system	156	18-07-14
3.	IAF	4 of 2014	3.9	Loss due to less recovery of interest	0.95	18-07-14
4.	IAF	34 of 2014	3.7	Directorate of stores, Air Headquarters	829.67	19-12-14
5.	IAF	34 of 2014	3.8	Audit on aerospace safety in Indian Air Force	N A	19-12-14
6.	HAL	8 of 2012-13	7.2	Excess payment of Performance Related Pay	43.18	04-09-12
7.	HAL	13 of 2013	7.10	Irregular payment of incentives	25.98	08-08-13
8.	HAL	13 of 2014	7.1	Irregular encashment of casual leave	12.43	01-08.14
9.	HAL	35 of 2014	9.1	Licence production of 'C' aircraft	NA	19-12-14

**B. List of Paras/Reports on which revised ATNs are awaited from Ministry**

Sl. No	IAF/HAL	Report No./Year	Para No	Title of the Para/Report	Money value ₹ in crore	Date on which vetted comments have been issued
1.	IAF	16 of 2010-11	2.8	Financial irregularities in organizing Military World Games 2007	50	12-12-13
2.	IAF	17 of 2012-13	2.1	Management of Defence Offset	3410.49	28.08.15
3.	IAF	17 of 2012-13	3.1	Extra expenditure due to delay in conclusion of a contract	87.52	19-02-15
4.	IAF	4 of 2014	2.2	Delay in up gradation of an aircraft	272	09-04-15
5.	IAF	4 of 2014	2.3	Avoidable expenditure in procurement of Aero-engines	227	28-04-15
6.	IAF	4 of 2014	3.1	Avoidable expenditure on procurement of Test Equipment	11	17-04-15

*Report No. 38 of 2015 (Air Force)*

7.	<b>IAF</b>	4 of 2014	3.4	Induction of Precision Approach Radar in Indian Air Force	2.23	08-05-15
8.	<b>IAF</b>	34 of 2014	2.3	Procurement of Air Combat Maneuvering Instrumentation (ACMI) system	167	21.05.15
9.	<b>IAF</b>	34 of 2014	3.1	Avoidable expenditure on repair of turbine blades	10.14	18-05-15
10.	<b>IAF</b>	34 of 2014	3.4	Unjustified procurement of a system	3.49	03-09-15
11.	<b>IAF</b>	34 of 2014	3.6	Avoidable loss due to injudicious decision on procurement of colour dyes	4.51	27-08-15
12.	<b>IAF</b>	34 of 2014	3.11	Avoidable expenditure on Maintenance of Simulators	0.92	08-05-15
13.	<b>HAL</b>	24 of 2009-10	6.3.1	Fraudulent payments on unauthorized incentive scheme	52.24	09-07-09
14.	<b>HAL</b>	9 of 2009-10	7.3.2	Avoidable loss due to non provision of full maintenance expenditure- HAL	5.26	05-08-10
15.	<b>HAL</b>	9 of 2009-10	7.3.3	Failure to enter into a formal contract with AHQ for MiG upgrade- HAL	3.81	05-08-10
16.	<b>HAL</b>	10 of 2010-11	Chapter III (Performance Audit)	Production and supply of Advanced Light Helicopter- HAL	NA	05-08-10
17.	<b>HAL</b>	3 of 2011-12	7.4	IT audit of implementation of Industrial Financial System with specific thrust of Material Management module	NA	25-08-11
18.	<b>HAL</b>	13 of 2013	7.7	1. Execution of Shakti Engine for ALH 2. Delay in development and production of Shakti engine for Advanced Light Helicopter	NA	08-08-13
19.	<b>HAL</b>	13 of 2013	7.8	Execution of Intermediate Jet Trainer Project	NA	08-08-13
20.	<b>HAL</b>	13 of 2013	7.9	Loss in sale of Advanced Light Helicopters	58.80	08-08-13

**Annexure-IA**  
(As referred in Para 2.2.5, 2.2.9.3)

**Operational works sanctioned prior to year 2010-11 but not completed (as of March 2014\*)**

Sl. No.	Name of unit	Nomenclature of work services	Year of Sanction	Cost of work (₹ in Lakh)	PDC (Original)	Physical progress (March 2015)	Remarks
1	'W-10' Wing	Provision of security wall 3.2 KM length at 'Y' SU, AF	2002-03	665.00	30.11.07	85%	Initial delay in approval of design and slow progress of work by the contractor
2	'W-6' Wing	Provision of Airfield drainage system at 'W-6' Wing, AF	2006-07	393.29	16.04.08	47%	Work held up since 2010 due to flash floods and case initiated for fore closure
3	'W-1' Wing	Provision of Watch tower and Guard rest room at 'U' SU, AF	2006-07	61.60	30.09.07	71%	Slow progress by the contractor
4	'R' FBSU	Provision of security fencing around the base	2006-07	251.95	15.08.09	99%	Non-availability of 600 mm dia concertina coil on DGS&D and hindrances by nearby villagers
5	'W-6' Wing	Provision of cement slabs bay, oxygen and battery charging room, dust proof hydraulic as ultrasonic bay and parking shed of ground equipment and fuel browsers at 'X' HU	2008-09	60.88	21.02.10	93%	Slow progress by the contractor
6	'W-1' Wing	Provision of Pre-fab structure for proper master quadrant and RH quadrant at Thoise Maidan Range at 'W-1' Wing	2009-10	106.05	7.01.11	Nil	Tender action was held up due to land dispute and the work has now been cancelled.
7	'Q' FBSU	Provision of Main Guard room and foot over bridge connecting main station to Nishat enclave at 'Q' FBSU	2009-10	186.00	31.03.12	57%	Slow progress by the contractor
8	'W-7' Wing	Provision of work services for improvement of water supply system at 'X' TRU	2009-10	50.45	30.11.11	75%	Work stopped due to land dispute
9	'W-7' Wing	Provision of temporary OTM accommodation at 'X' TRU	2009-10	468.38 516.18 (Revised)	31.12.12	5%	Work stopped due to pending transfer of ownership of land

\* These works remained incomplete as of March 2015 also.

**Annexure-II**  
(As referred in Para 2.2.7.2)

Details in respect of operational works sanctioned during 2010-11 and 2013-14 for permanent nature of works

Sl. No.	Name of Unit	OP Task No.	Name of Work	Cost (₹ in Lakh)
<b>(A) Cases in which Engineer Appreciations were prepared for permanent nature of works</b>				
1	'W-6' Wing	WAC/Op Wks/3/'W-6' WG/2011-12	Construction of shed for housing of SATCOM Eqpt and DG Sets at Base Camp at 'W-6' Wg AF	47.75
2	'W-7' Wing	WAC/Op Wks/5/'W-7' WG/2011-12	Provn of re-carpeting of existing cemented road from main gate to helipad guards post No. 22 to Op location mess and other existing cemented road at Op location of 'X' TRU C/O 'W-7' Wg AF	14.71
3	'W-7' Wing	WAC/Op Wks/10/'W-7' WG/2011-12	Strengthening of existing approach road by construction of retaining wall at 'Y' TRU C/O 'W-7' Wg AF	263.42
4	'W-7' Wing	WAC/Op Wks/11/'W-7' WG/2011-12	Provn of Parking shed, hard standing and servicing garages at Op location of 'Y' TRU C/O 'W-7' Wg AF	279.29
5	'W-7' Wing	WAC/Op Wks/12/'W-7' WG/2011-12	Strengthening of Radar Ramp at Op location of 'Y' TRU C/O 'W-7' Wg AF	172.22
6	'W-7' Wing	WAC/Op Wks/7/'W-7' Wg/2012-13	Provn of porta cabin for communication equipment at Op location of 'X' TRU C/O 'W-7' Wg AF	16.4
7	'W-6' Wing	WAC/Op Wks/15/'W-6' Wg/2012-13	Provn of over head water tank filling facility at new safety bay at 'W-6' Wg AF	20.4
8	'W-7' Wing	WAC/Op Wks/18/'W-7' Wg/2012-13	Construction of cook house and misc B&R works at Op location at 'W' SU C/O 'W-7' Wg AF	27.54
9	'W-6' Wing	WAC/Op Wks/4/'W-6' Wg/2013-14	Provn of 4 garages for C-17 aircraft dett ground vehicles and equipment near IL dispersal at 'W-6' Wg AF	86.44
10	'W-7' Wing	WAC/Op Wks/6/'W-7' Wg/2013-14	Provn of retention wall with parapet at Op location of 'X' TRU C/O 'W-7' Wg AF	57.04

**Report No. 38 of 2015 (Air Force)**

11	'W-10' Wing	WAC/Op Wks/7/'W-10' Wg/2013-14	Provn of Sheds for Compressed Gas Cylinders in 'Y' HU at 'W-10' Wg AF	13.09
12	'W-6' Wing	WAC/Op Wks/8/'W-6' Wg/2013-14	Provn of Pre fab four room accommodation with corridor and five garages for new refueling section at 'W-6' Wg AF	179.77
13	'W-10' Wing	WAC/Op Wks/9/'W-10' Wg/2013-14	Provision of sheds for 'FF' hard standing (Qty-6) at 'Y' SU AF	14.9
14	'W-7' Wing	WAC/Op Wks/10/'W-7' Wg/2013-14	Work services for Provn of hard standing for radar vehicle and room for AFNET at Op location of 'X' TRU AF at 'W-7' Wg AF	32.77
15	'Q' FBSU, AF	WAC/Op Wks/4/'Q' FBSU / 2011-12	Provision of Pre-Fabricated Ops Shelter for Visiting Squadron	52.99
16	'W-1' Wing, AF	WAC/Op Wks/2/'W-1' Wg / 2012-13	Provision of road and associated services at alpha & bravo sites of 'Sq-10' Squadron	57.55
17	'Q' FBSU, AF	WAC/Op Wks/14/'Q' FBSU/ 2013-14	Provision of Porta cabins at Rohini radar site of 'Sq-9' Squadron.	57.02
18	'Q' FBSU, AF	WAC/Op Wks/20/'Q' FBSU/ 2013-14	Provision of shelters for specialist vehicles and equipments at rohini Radar site of 'Sq-9' Squadron.	14.57
19	'W-1' Wing, AF	WAC/Op Wks/21/'W-1' Wg/ 2013-14	Addition/ alteration of plinth at old tech flight at 'Sq-10' Squadron	89.19
			<b>Sub total</b>	<b>1497.06</b>
<b>(B) Other cases in which operational works were sanctioned for permanent nature of works</b>				
20	'Z' SU	SWAC/77 SU/Op Wks/2/2010-11	Provision of Narmada water supply to AFS 'S-21'	114.1
21	'W-8' Wing	SWAC/27 Wg/Op Wks/2/2011-12	Renovation of certain Blast pens at AFS 'S-2'	450.39
22	'W-10' Wing	WAC/Op Wks/8/'W-10' WG/2010-11	Certain operational works services for induction of 'CC' system at Op location at 'Y' SU	863.77
23	'W-14' Wing	SWAC/33 Wg/Op Wks/1/2010-11	Augmentation of water supply at AFS 'S-18'	733.41
			<b>Total</b>	<b>3658.73</b>

**Annexure-III**

(As referred in Para 2.2.9.2)

**Non-conclusion of contracts for Operational works sanctioned during 2010-11 and 2013-14 (as of March 2015)**

Sr. No.	OP Task No.	Date of AA	Nomenclature of Work Services	Cost (₹ in Lakh)	PDC as per AA	Status
<b>Year : 2011-12</b>						
1	WAC/Op Wks/ 8 / 'W-7' Wg/2011-12	21-11-2011	Construction of four guard posts at Op location of 'X' TRU at 'W-7' Wing AF	31.41 revised to 94.91	30-11-2012	Under tender action at HQ CE Udampur
<b>Year : 2012-13</b>						
1	WAC/Op Wks/ 15 / 'W-6' Wg/2012-13	19-03-2013	Provision of over head water tank filling facility at new safety bay at 'W-6' Wg AF	20.4	31-03-2015	Due to change in scope of work RAA was pending for issue
<b>Year : 2013-14</b>						
1	WAC/Op Wks/ 10 / 'W-7' Wg/2013-14	28-01-2014	Work services for Provision of hard standing for radar vehicle and room for AFNET at Op location of 'X' TRU AF at 'W-7' Wg AF	32.77	31-01-2015	Under tender action at HQ CWE Rajouri
2	SWAC/'W-11' Wg/ Op Wks /1 / 2013-14	30-03-2014	Provision of tent plinths, toilets and ancillary buildings for camp at AF stn, 'S-10'	77.28	31-03-2016	Under tender action at HQ CE(AF) Gandhinagar

**Annexure-IV**  
(As referred in Para 2.2.9.3)

**Operational works sanctioned during 2010-11 and 2013-14 but not completed by MES (as of March 2015)**

Sl. No.	OP Task No.	Name of Work	Cost (₹ in Lakh)	PDC as per AA	Executing Authority	Physical progress
<b>Year : 2010-11</b>						
1	WAC/Op Wks /4 /'W-10' Wg/2010-11	Provision of additional water storage tanks at stage-I at 'Y' SU	48.14	30.11.2012	CE (AF) Udhampur	90%
2	WAC/Op Wks/8 /'W-10' Wg/2010-11	Certain operational works services for induction of 'CC' at Op location at 'Y' SU	683.75 revised to 863.77	30.07.2013	CE (AF) Udhampur	21%
3	WAC/Op Wks/10 / 'W-7' Wg/2010-11	Construction of FRP shelter (Qty 2) at Op location of 'X' TRU AF	13.02	28..02.2012	CWE Rajouri	8%
4	WAC/Op Wks/12 /'W-1' Wg/2010-11	Provision of deficient qty-4 pre fab living in accn with bunk bed	182.1	30.03.2013	CE (AF) Udhampur	55%
5	WAC/Op Wks/13 / 'W-7' Wg/2010-11	Provision of parking shed, hard standing and servicing garages at 'X' TRU	6.93	30.04.2012	CWE Rajouri	95%
6	WAC/Op Wks/14 / 'W-7' Wg/2010-11	Provision of pre -fab shelter for power plant at Op location of 'X' TRU	2.74	30.04.2012	CWE Rajouri	95%
<b>Year : 2011-12</b>						
1	WAC/Op Wks/1 / 'W-10' Wg/2011-12	Construction of covered parking shed for MT vehicles at 'Y' SU	101.58	30.06.2013	CE (AF) Udhampur	40%
2	WAC/Op Wks/3 /'W-6' Wg/2011-12	Construction of shed for housing of SATCOM Eqpt and DG Sets at Base Camp	47.75	30.10.2013	CE (AF) Udhampur	40%
3	WAC/Op Wks/4 /'Q' FBSU/2011-12	Provision of pre-fabricated Op Shelters for visiting Sqn	52.99	31.10.2013	CE (AF) Udhampur	14%
4	WAC/Op Wks/7 /'W-6' Wg/2011-12	Provision of covered shelters for parking vehicles during extreme winter/snow fall at 'S-23' and Base Camp	168.18	30.11.2012	CE (AF) Udhampur	82%
5	WAC/Op Wks/8 / 'W-7' Wg/2011-12	Construction of four guard posts at Op location of 'X' TRU	31.41	30.11.2012	CE Udhampur	Under tender action at HQ CE Udhampur

**Report No. 38 of 2015 (Air Force)**

6	WAC/Op Wks/11 / 'W-7' Wg/2011-12	Provision of Parking shed, hard standing and servicing garages at Op location of 'Y' TRU	249.55	30.06.2013	CE Udhampur	95%
7	WAC/Op Wks/12 / 'W-7' Wg/2011-12	Strengthening of Radar Ramp at Op location of 'Y' TRU	143.58	31.07.2013	CE Udhampur	2%
8	WAC/Op Wks/14 / 'R' FBSU/2011-12	Provision of four pre-fab with modular fabricated shelters	242.69	31.03.2013	CE (AF) Udhampur	30%
9	SWAC/ 'P' FBSU/ Op Wks/1/2011-12	Construction of tarmac for HESU at K' Link at AF Stn 'S-24'	200.08 revised to 371.46	28.02.2014	CE (AF) Gandhinagar	95%
<b>Year : 2012-13</b>						
1	WAC/Op Wks/2 / 'W-1' Wg/2012-13	Provision of road and associated services at alpha & bravo sites of 'Sq-10' Sq	57.55	08.01.2014	CE (AF) Udhampur	80%
2	WAC/Op Wks/3 / 'W-1' Wg/2012-13	Provision of road at Op location of AD radar at 'W-1' Wing AF	68.79	08.01.2015	CE (AF) Udhampur	94%
3	WAC/Op Wks/8 / 'W-6' Wg/2012-13	Construction of temporary concrete platform for three LLLW radars and sheds for nine generator sets with footpath from main road to radar	28.67	28.02.2014	CE (AF) Udhampur	50%
4	WAC/Op Wks/9 / 'W-6' Wg/2012-13	Construction of four temporary pre fab shelters for newly raised DSC Platoon at 'S-23' & 'W-6' Wg AF	141.63	28.02.2015	CE (AF) Udhampur	35%
5	WAC/Op Wks/10 / 'W-6' Wg/2012-13	Construction of 4 additional pre fab accommodation for Office, SNCO and Airmen billets at 'Z' TRU	149.25	28.02.2015	CE (AF) Udhampur	59%
6	WAC/Op Wks/12 / 'W-1' Wg/2012-13	Provision of Qty-1 shelter for MCC at 'W-1' Wg AF	24.1	28.02.2015	CE (AF) Udhampur	65%
7	WAC/Op Wks/13 / 'W-7' Wg/2012-13	Work services for power supply and allied works for operation of LLTR at Op location of 'Y' TRU	151	31.08.2014	CE Udhampur	95%
8	WAC/Op Wks/14 / 'W-7' Wg/2012-13	Work services for provision of radar ramp for 'K' TRS of 'V' SU	415	31.03.2015	CE (AF) Udhampur	35%



9	WAC/Op Wks/15 /'W-6' Wg/2012-13	Provision of over head water tank filling facility at new safety bay at 'W-6' Wg AF	20.4	31.03.2015	CE (AF) Udhampur	RAA pending for issue
10	WAC/Op Wks/16 / 'Q' FBSU/2012-13	Provision of Pre Fabricated shelters for storage of drop tanks at 'Q' FBSU	326.9	31.03.2015	CE (AF) Udhampur	16%
11	WAC/Op Wks/17 / 'W-1' Wg/2012-13	Provision of porta cabin at Op location of 'Sq-10' Sqn	67.52	31.03.2015	CE (AF) Udhampur	93%
12	WAC/Op Wks/18 / 'W-7' Wg/2012-13	Construction of cook house and misc B&R works at Op location at 'W' SU	27.54	30.09.2014	CWE Rajouri	95%
13	WAC/Op Wks/19 / 'Q' FBSU/2012-13	Provision of porta cabin at ground station of 'Sq-11' Sqn	26.58	31.03.2015	CE (AF) Udhampur	30%
<b>Year : 2013-14</b>						
1	WAC/Op Wks/3 / 'W-7' Wg/2013-14	Provision of 1000 litres solar water heater (Qty-4) at 'Y' TRU	10.47	31.12.2014	CWE Rajouri	0%
2	WAC/Op Wks/5 / 'W-7' Wg/2013-14	Provision of water filtration plant at Op location of 'X' TRU	20.73	31.01.2015	CWE Rajouri	0%
3	WAC/Op Wks/6 / 'W-7' Wg/2013-14	Provision of retention wall with parapet at Op location of 'X' TRU	57.04	31.01.2015	CE Udhampur	0%
4	WAC/Op Wks/7 / 'W-10' Wg/2013-14	Provision of Sheds for Compressed Gas Cylinders in 'Y' HU	13.09	31.01.2015	CE (AF) Udhampur	98%
5	WAC/Op Wks/8 / 'W-6' Wg/2013-14	Provision of Pre fab four room accommodation with corridor and five garages for new refueling section	179.77	31.01.2015	CE (AF) Udhampur	2%
6	WAC/Op Wks/10 / 'W-7' Wg/2013-14	Work services for provision of hard standing for radar vehicle and room for AFNET at Op location of 'X' TRU	32.77	31.01.2015	CWE Rajouri	Under tender action at HQ CWE Rajouri
7	WAC/Op Wks/11 /'W-1' Wg/2013-14	Provision of Qty-3 Semi underground launcher shelter at Alpha Flight of 'Sq-10' Sqn	33.82	20.02.2015	CWE (AF) Srinagar	45%
8	WAC/Op Wks/12 /'W-1' Wg/2013-14	Provision of Semi underground FOL Shed at 'A','B' and SMT at 'Sq-10' Sqn	36.3	20.02.2015	CWE (AF) Srinagar	35%
9	WAC/Op Wks/13 / 'W-7' Wg/2013-14	Provision of temporary shelter for use as billet at Op location of 'Y' TRU	54.39	20.02.2015	CE Udhampur	75%
10	WAC/Op Wks/14 / 'Q' FBSU/2013-14	Provision of Porta Cabins at Rohini Radar site of 'Sq-9' Sqn	57.02	31.03.2015	CE (AF) Udhampur	0%

**Report No. 38 of 2015 (Air Force)**

11	WAC/Op Wks/16 /'W-1' Wg/2013-14	Provision of Qty-2 Pre-fab structures as OTM accommodation at Tech Flight of 'Sq-10' Sqn	110.32	31.03.2015	CE (AF) Udhampur	1%
12	WAC/Op Wks/17 / 'R' FBSU/2013-14	Provision of parking shed for APPA & specialist vehicle at tarmac at 'R' FBSU	214	31.03.2015	CE (AF) Udhampur	0%
13	WAC/Op Wks/18 / 'R' FBSU/2013-14	Construction of sheds in POL yards of MT Section and LGS Section at 'R' FBSU	103.8	31.03.2015	CE (AF) Udhampur	0%
14	WAC/Op Wks/20 / 'Q' FBSU/2013-14	Provision of shelters for specialist vehicles and equipments at Rohini Radar site of 'Sq-9' Sqn	14.57	31.03.2015	CWE (AF) Srinagar	10%
15	WAC/Op Wks/21 /'W-1' Wg/2013-14	Addn/Altn of Plinth at Old Tech Flight at 'Sq-10' Sqn	89.19	31.03.2015	CE (AF) Udhampur	0%
16	WAC/Op Wks/22 /'W-1' Wg/2013-14	Provision of sheds for Compressed Gas Cylinders at 'W-1' Wg	39.46	31.03.2015	CWE (AF) Srinagar	0%
17	SWAC/ 'P' FBSU/ Op Wks /1 /2013-14	Provision of fiber glass shelter for missile storage and fire fighting works for A&B combat fleets of 'Sq-12' squadron at AF Stn. 'S-24'	24.58	31.03.2015	CWE (AF) Jodhpur	0%

ANNEXURE-V

(As referred in Para 2.3.1)

Acquisition of 'C' aircraft along with relevant comments in earlier Audit Reports

Name of the supplier	Year of Contract conclusion	Qty	Value	Delivery during the year	Commented in Audit Report No	PAC's Concern /ATN
Russia (OEM)	1996	8 'C' aircraft 10-Phase-I 12-Phase-II 10-Phase III	\$1462 Million (₹5122 crore) +₹1188 crore = ₹6310 crore	1997-2004 (40 aircraft)	Paragraph No.2 of the Report of the C&AG of India, Union Government, Defence Services (Air Force & Navy) for the year ended March 1999 (Report No.8 of 2000)	In reply to a PAC question (2003-2004) Ministry stated (December 2003) that " 'C' aircraft Project Development and Monitoring Cell" had been formed at Air HQ to monitor, coordinate and execute the project and function as a single point agency to maintain an interface with all the vendors and also to ensure timely setting up of repair and overhaul facilities to sustain the operations of fleet
		Total: 40 aircraft				
Russia (OEM)	1998	10 'C' aircraft	\$277.01 Million ₹1187 crore	1999 (10 aircraft)		
HAL	March 2006	140 'C' aircraft	\$4809.3 Million ₹22,122.78 crore	2004-2015 (99 aircraft)	Chapter I of Report of the C&AG of India for the year ended march 2005, Union Government (Defence Services) Air Force & Navy (Report No.4 of 2006)	Ministry in their Action Taken Note (ATN) had accepted (May 2011) the Audit conclusion while giving a detailed justification of the events leading to audit observations. However, Ministry submitted the ATN without any assurance / remedial action taken with reference to lesson learnt / system improvement.
	March 2007	40 'C'	₹9036.84 crore	2008-2012 (40 aircraft)	Paragraph 2.7 of Report of C&AG of India for the year ended March 2008, Union Government (Defence Services) Air Force & Navy (Report No.CA 18 of 2008-09)	Ministry in their ATN (June 2011) had agreed with the facts and figures included in the Paragraph.
	December 2012	42 'C'	₹16,147.28 crore	2012-2015 (15 aircraft)	Paragraph 9.1.2.5 of Report of the C&AG of India for the year ended March 2013, Union Government (Defence Services) Army, Ordnance Factories and Defence Public Sector Undertakings (Report No.35 of 2014)	
<b>Total</b>		<b>272 aircraft</b>		<b>204 aircraft</b>		

**Annexure –VI**  
(As referred in Para-3.1.3)

**Details of 27 MM projects undertaken by nine laboratories for IAF**

Closed Projects (₹ in lakh)								
Sl. No.	Name of the Lab	Name of the Project	Month of Sanction	User	Sanctioned cost		Original PDC	Actual month of Completion
					Original	Revised (if any)		
1	CAIR	MEGHADOOT	Dec- 2007	Air Force	976	1109	Jul-2012	Dec-2013
2	DEBEL	HAWK AJT	Nov-2005	Air Force	49	49	Nov-2008	Nov-2008
3	DEBEL	ARM	May-2008	Inter - Services	50	50	May-2010	May-2010
4	DEBEL	Individual Protective Equipment	Aug-2008	Armed Forces	135	135	Feb-2011	Jul-2013
5	DEBEL	Portable Hand held vital Parameter Monitor	Jan-2009	Armed Forces	48.5	48.5	Jul-2010	Jul-2010
6	DEBEL	Common Helmet and Mask	July-2009	Air Force	47.5	134	Sep-2013	Jul-2013
7	LRDE	ROHINI	Nov-2003	Air Force	3405	3405	Nov-2006	Aug-2007
8	LRDE	PPA REVATHI & ROHINI (PPA)	Dec-2007	Navy & Air Force	800	800	Mar-2009	Dec-2010
9	LRDE	Low Level Light Weight Radar	Dec-2004	Air Force	2244	2244	Jun-2007	Jan-2011
10	DARE	EW Suite for Fighter Aircraft ( MiG – 27)	Sep-2005	Air Force	16842	17557	Mar-2011	Mar-2012

**Ongoing projects**

Sl. No.	Name of the Lab	Name of the Project	Month of Sanction	User	Sanctioned Cost	Revised Cost if any	Original PDC	Revised PDC
1	ADE	RUSTOM-2	Feb-2011	Tri Services	143744	143744	Aug-2016	-
2	CABS	AEW&C	Oct-2004	Air Force	180000	215700	Apr-2011	Dec-2015

3	DARE	Program for Development of EW Suite for Fighter Aircraft (TEJAS)	Sep-2005	Air Force	14329	15474	Mar-2011	Dec-2014
4	DARE	Development of Dual Colour Missile Approach Warning System for Fighter Aircraft ( Su-30 MK I) ( DCMAWS)	Nov-2008	Air Force	19100	26880	Jun-2013	Jun-15
5	DARE	Structural Modification of MiG-29 Aircraft for Internal EW Suite (D-29)	Mar-2009	Air Force	7410	9229.74	Nov-2010	May-2014
6	DARE	Development of D-29 System (Internal EW System for MiG-29 Up gradation Aircraft)	Mar-2010	Air Force	16885	16885	Dec-2012	May-2014
7	DARE	Development of ESM for AEW&C System	May-2005	Air Force	7500	7500	Apr-2011	Dec-2015
8	DARE	Development of SPS for AEW&C System	May-2005	Air Force	1800	1800	Apr-2011	Dec-2015
9	DARE	Development of D-JAG System Internal RWJ System for Jaguar DARIN-III Up gradation Aircraft	Aug-2012	Air Force	26827	26827	Jun-2015	-

10	DEBEL	Life Support System for Services	Mar-2009	Tri Services	2500	2500	Feb-2014	NA
11	DEBEL	Development of Enhanced Thermal Insulation Material for Extreme Cold Weather Clothing (DETIMAT)	Jun-2012	Army & Air Force	403	403	Dec-2015	NA
12	DEBEL	Indigenisation of Jaguar Personal Equipment Connector ( Man Portion)	Apr-2013	Air Force	35	35	Apr-2015	NA
13	DFRL	Development of Specific processed Food Technologies for Armed Forces in Combat Environment	Jun-2009	Inter Service	1400	1400	Jun-2014	-
14	GTRE	Design & Development of Kaveri Engine for LCA	Mar-1989	Air Force	38281	283900	Dec-1996	CCS note is under process
15	LRDE	Development of Primary Radar for AEW&C System	Dec-2004	Air Force	55000	9700	Apr-2011	Dec-2015
16	LRDE	Project ARUDHRA- Development of Medium Power Radar (MPR)	Nov-2008	Air Force	13414	13414	May-2013	May-2014
17	LRDE	Low Level Transportable Radar (LLTR)- ASHWINI	Jun-2009	Air Force	7395	7395	Dec-2012	Jun-2014

## Annexure –VII (A)

(As referred in Para 3.1.3)

## List of 14 MM projects selected for Audit

Sl No	Name of the project , Sanction Date and Name Laboratory	Date of initial projection of IAF	In principle approval for developme nt	Project Status	Date of comple tion	Time taken from initial require ment to close of project/ March 2015	Status of ongoing projects in brief
				Closed or ongoing			
1	2	3	4	5	7	8	6
1.	Development of Low Level Light Weight Radar (ASLESHA) + PPA 22/12/2004- LRDE	August 2004 (36 No)	September 2004	Closed	January 2011	85months	-
2.	Development of NBC individual Protective Equipment for crew of Transport Aircraft and Helicopter (NITA) - 26/8/2008- DEBEL	July 2007	NA	Closed	25.2.12	55 months	-
3.	Design and Development of Common Aircrew Helmet-Mask for IAF - 30/7/2009- DEBEL	March 2009	NA	Closed	29.7.13	52 months	-
4.	Development of 3D-Surveillance Radar 'ROHINI' for AF 4/11/2003- LRDE	August 2003	NA	Closed	31.8.07	112 months	-
5.	Post developmental activities of Radars 'ROHINI' & 'REVATHY' (PPA-2007/LRD-268) 10/12/2007 -LRDE	-	NA	Closed	31.12.12		-
6.	Project on 'Secure Communication of video, Voice and Fax between Airborne platform and Ground Station -project MEGHDOOT-27/12/2007 - CAIR	October 2006	NA	Closed	31.12.13	86 months	PDC expired (31-12-13) and CAIR consider the project closed after development of the security solution. Hence no extension has been sought by CAIR. However, the user trials are under progress and IAF is yet to accept the security solution developed by CAIR.

7.	Development of Medium Power Radar (MPR) – Project ‘ARUDHRA’ – 4/11/2008 - LRDE	November 2004	April 2006	Ongoing		128 months	The user-evaluation of the MPR developed is yet to commence
8.	Development of Low Level Transportable Radar (LLTR)-Project ‘ASHWINI’- 17/6/2009 - LRDE	February 2006	October 2005	Ongoing	-	113 months	The user-evaluation of the LLTR developed is yet to commence
9.	Parallel development of Primary Radar for AEW&C system under Mission Mode and TD- 6/10/2004 –LRDE	December 2004	NA	Ongoing	-	127 months	The flight trials of the PR jointly developed by LRDE & CABS is under progress and the PDC is December 2015
10.	Development of Dual Colour Missile Approach Warning System (DC MAWS) - 5/11/2008-DARE	November 2006	September 2004	Ongoing	-	104 months	DARE has claimed that the DC MAWS has been developed successfully within the extended PDC of June 2015 and has proposed to carryout integration of the IR sensors on the modified Su-30MKI under separate project
11.	Development of EW suite (D-29 system) for MiG-29 aircraft- 25/3/2010-DARE	August 2006		Ongoing	-	107 months	Ground acceptance test of D-29 system developed has been completed whereas its flight trials have not commenced in the absence of upgraded aircraft which is undergoing for evaluation of the systems installed during upgrade



12.	Structural modification of MiG-29 aircraft 27-3-2009 DARE	August 2006		Ongoing	-	107 months	Out of six upgraded aircraft that underwent structural modification at Russian, additional modification on three upgrade aircraft is yet to be commence
13.	Development of SPS for AEW&C system-12/5/2005 - DARE	May 2005		Ongoing	-	122 months	The ground trials of the SPS developed is under progress ( PDC December 2015)
14.	Development of ESM for AEW&C system-12/5/2005 - DARE	May 2005		Ongoing	-	122 months	The ground trials of the ESM developed has been completed and flight trials is under progress ( PDC December 2015)

## Annexure –VII (B)

(As referred in Para 3.1.8.4)

## Time and Cost overrun in respect of 14 MM projects selected for Audit

Sl. No.	Project Name, Sanction date and the lab executing the project	Time				Cost ₹ (in crore)				
		PDC in months		Time overrun (month)	Time overrun (in per centage)	Original	Revised	Actual expenditure as of March 2015	Savings with reference to original cost (per centage)	Cost Over run with reference to original cost (Per centage)
		Original	Total including Latest Extension							
1	2	3	4	5	6 (5/3x 100)	7	8	9	10 (9-7)	11 (9-7/7 x 100)
<b>Closed Projects</b>										
1	Development of Low Level Light Weight Radar (ASLESHA) + PPA 22/12/2004- LRDE	30	42	12	40	22.44 (21.94 +.50)	-	20.77	1.67 (7.44)	-
2	Development of NBC individual Protective Equipment for crew of Transport Aircraft and Helicopter (NITA) - 26/8/2008- DEBEL	30	42	12	40	1.35	-	1.00	0.35 (25.07)	-
3	Design and Development of Common Aircrew Helmet-Mask for IAF -30/7/2009- DEBEL	36	48	12	33	0.475	1.34 (47.5+ 44.5+42)	1.23	-	158.94
4	Development of 3D-Surveillance Radar 'ROHINI' for AF 4/11/2003- LRDE	36	45	9	25	34.05	-	28.02	6.03 (17.70)	-
5	Post developmental activities of Radars 'ROHINI' & 'REVATHY' (PPA-2007/LRD-268) 10/12/2007 -LRDE	15	36	21	140	8.00	-	7.27	0.73 (9.12)	-
6	Project on 'Secure Communication of video, Voice and Fax between Airborne platform and Ground Station -project MEGHDOOT-27/12/2007 - CAIR	24	72	48	200	9.76	11.09 (9.76+1.33)	10.07	-	3.17

**Report No. 38 of 2015 (Air Force )**

<b>Ongoing Projects</b>										
						<b>Original</b>	<b>Revised</b>	<b>Actual expenditure as of March 2015</b>	<b>Savings with reference to original cost (percentage)</b>	<b>Cost Over run with reference to original cost (Percentage)</b>
7	Development of Medium Power Radar (MPR) – Project ‘ARUDHRA’ – 4/11/2008 - LRDE	54	74	20	37	134.14	-	130.06*	-	-
8	Development of Low Level Transportable Radar (LLTR)-Project ‘ASHWINI’- 17/6/2009 - LRDE	42	70	28	66.66	73.95	-	63.72	-	-
9	Parallel development of Primary Radar for AEW&C system under Mission Mode and TD-6/10/2004 –LRDE	78	134	56	71.79	550.00	97.00	66.90	-	-
10	Development of Dual Colour Missile Approach Warning Sensor (DC MAWS) - 5/11/2008-DARE	55	79	24	43.63	193.00	273.8	194.16	-	0.60
11	Development of EW suite (D-29 system) for MiG-29 aircraft- 25/3/2010-DARE	33	62	29	87.87	168.85	-	137.83	-	-
12	Structural modification of MiG-29 aircraft 27-3-2009 DARE	20	62	42	210	74.10	92.30	61.99	-	-
13	Development of SPS for AEW&C system- 12/5/2005 - DARE	78	134	56	71.79	18.00	99.00	18.46	-	2.55
14	Development of ESM for AEW&C system- 12/5/2005 - DARE	78	134	56	71.79	75.00		75.43	-	0.57
<b>Total</b>							<b>1017.31</b>			

\* Committed expenditure up to March 2015

**Annexure-VIII***( As referred in para 3.1.8.10)***Development partners of MPR (Project Aurdhra)**

Sl. No	Nomenclature	Name of Firm	Original PDC	Revised PDC	Date of Delivery & Date of Acceptance
1	Development and realisation of Antenna Cabin	M/s L&T, Mumbai	10-3-12	30-10-12 30-4-14	24.01.2014 30.04.2014
2	Development & Realisation of Active Array Electronics	M/s Astra Microwave Products Ltd., Hyderabad	30-3-12	30-3-12 12-7-12	30.03.2012 12.07.2012
3	Development & Realisation of Array Group Receiver (AGR)	M/s Astra Microwave Products Ltd., Hyderabad (for prototype radar)	8-6-11	15-3-12	31.01.2012 08.06.2012
		M/s Data Patterns India Pvt. Ltd., Chennai (for final radar)	29-8-12	30-8-13 2/ 2014	02.2012 30.08.2013
4	Development & Realisation of Digital Beam Former	M/s Core EL Technologies, Bengaluru	2-6-11	8-2-11 10-2-12	08.12.2011 10.02.2012
5	Development & Realisation of liquid cooled DC-DC Power Supply	M/s Jai Sales Corporation, Bengaluru	29-7-12	30-11-13	28.11.2013 20.02.2014
6	Development & Realisation of Pedestal	M/s L&T., Mumbai	13-12-11	30-6-12 28-2-13 30-4-13	03.06.2013 16.04.2014
7	Supply of Rotary Joint Assembly	M/s Schliefring, Germany	21-10-11	18-10-12	21.10.2011 09.04.2012
8	Development & Realisation of Operation Shelter	M/s BEL, Ghaziabad.	8-3-13	31-1-14 15-12-14	21.01.2014 15.12.2014
9	Development & Realisation of Radar Shelter	M/s BEL, Ghaziabad.	8-3-13	31-1-14 15-12-14	21.01.2014 15.12.2014
10	Development & Realisation of Liquid Cooled Signal, Data, Timing, Calibration, ECCM Processor	M/s Mistral Solutions, Bengaluru	14-1-12	30-3-13	30.03.2013 30.11.2013
11	Supply of IFF Interrogator	M/s Thales, France	20-1-13	11- 2014	--
12	Development & Realisation of IFF Pedestal	M/s System Controls, Bengaluru	23-4-13	28-4-14	28.04.2014 17.10.2014
13	Development & Realisation of IFF Control unit	M/s Mistral Solutions, Bengaluru	15-4-13	31-12-13	31.12.2013 15.01.2014
14	Development & Realisation of Power System	M/s Mak Controls Pvt. Ltd., Coimbatore	28-4-12	30-11-13 21-2-14	23.11.2013 21.02.2014
15	Development & Realisation of Antenna Cooling System	M/s Pair Engineers, Pune	5-1-12	30-6-12 31-3-13	31.03.2013 04.2013
16	Development & Realisation of Antenna Pressurisation System	M/s Entek, Bengaluru.	31-10-12	30-4-13 30-6-14	30.06.2014 07.2014

**Annexure-IX**  
(As referred in para 3.1.8.11)

**Development Partners of LLTR (Project 'Ashwini')**

Sl. No	Nomenclature	Name of Firm	Original PDC	Revised PDC	Date of Delivery & Acceptance
1	Development & Realisation of Digital Beam Former	M/s CoreEL Technologies, Bengaluru	7-8-12	Nil	30.03.2012 20.09.2012
2	Development & Realisation of High Mobility Vehicle (One TATRA Vehicle for Radar Sensor Vehicle)	M/s BEML Limited, Bengaluru	4-6-12	Nil	22.02.2012 10.05.2012
3	Development & Realisation of High Mobility Vehicle (Three TATA Vehicles)	M/s TATA Motors, Bengaluru	10-4-12	30-11-12	30.11.2012 23.01.2013
4#	Development & Realisation of Operation Shelter	M/s BEL, Bengaluru	30-6-12	27-11-13	27.09.2013 27.11.2013
5#	Development & Realisation of Mobile Platform & Antenna Engineering	M/s L&T, Mumbai	30-6-12	30-11-13 15-05-13	04.07.2014@ 10.12.2014
6	Development & Realisation of Rotary Joint Assembly	M/s Schliefring, Germany	23-11-11	30-4-12	30.04.2012 04.01.2013
7#	Development & Realisation of Active Array Antenna	M/s Data Patterns India Pvt. Ltd, Chennai	8-2-12	31-5-12 31-7-12 30-9-12 7-12-12 29-03-13	12.03.2013@ 30.07.2014
8	Development & Realisation of Signal & Data Processor	M/s Mistral, Bengaluru	4-5-12	Nil	16.03.2012 07.06.2013
9	Development & Realisation of Array Group Receiver (AGR)	M/s Data Patterns India Pvt. Ltd, Chennai	10-1-12	31-3-12	15.06.2012 18.06.2012
10#	Development & Realisation of Power Supply System	M/s Mak Controls Pvt. Ltd., Coimbatore	30-8-12	28-2-13 21-3-13	04.03.2013 21.03.2013
11	Development & Realisation of Antenna Cooling System	M/s Entec Engineering, Bengaluru	7-11-11	30-12-11 30-4-12 31-7-12	31-7-2012
12	Development & Realisation of Radar display	M/s Alligator designs, Bengaluru	7-12-12	14-6-13	02.07.2014@ 24.07.2014
13	Development & Realisation of low bed trailer for air loading	M/s Tratec. Gurgaon.	17-9-13	15-4-14	07.03.2014 10.04.2014

@ Regularization of delay in delivery of items beyond revised PDC as per actual receipt is under progress.

# Delays in respect of four supply orders are as under -

**SI No.4:**

Stores supplied by BEL in October 2013 as against the original PDC of June 2012, reportedly due to stringent EMI/EMC<sup>1</sup> specifications for meeting user requirements

**SI No.5:**

Due to delay in manufacture of hydraulic cylinders, rotary plate and shield assembly, firm delayed supply of the Mobile Platform. Also there was a delay by LRDE in despatching IFF<sup>2</sup> antenna to the supplier for integration with 'Ashwini' antenna array. After obtaining two<sup>3</sup> PDC extensions, the mobile platform was delivered (July 2014) by the firm with overall delay of 24 months and same was accepted by LRDE in December 2014.

**SI No.7:**

Due to complexities in antenna array system and consequent delay in supply, PDC was extended five times<sup>4</sup> at the request of supplier and firm finally supplied antenna array in March 2013 which was tested and accepted (June 2014) by LRDE after a lapse of 16 months. However, inconsistent performance of the antenna electronics resulted in repeated re-work by the vendors of T/R modules.

**SI No.10:**

It was delivered only in March 2013 by firm after obtaining two PDC extensions, reportedly due to delay in finalisation of critical design parameters by LRDE and delay in import of critical sub-systems.

---

<sup>1</sup> Electro Magnetic Interference / Compatibility.

<sup>2</sup> Identification of friend and foe (IFF) is secondary radar. Antenna was realised by M/s AMPL Hyderabad and I/D from M/s Thales, France.

<sup>3</sup> 30-11-12 and 15-5-13.

<sup>4</sup> PDC extended upto 31-5-12, 31-07-12, 30-9-12, 7-12-12 and upto 29-3-13.

**Annexure-X**

(As referred in para 3.1.8.15)

**Details of Supply Orders placed for ESM & SPS**

Sl. No	Nomenclature	Name of Firm	PO NO & DT	Value	Original PDC	Revised PDC	Date of Delivery & Acceptance
1	Multiple Channel RF Digital Signal Processor (MRDSP)	M/s. ELTA Israel	DARE/CONT/AEW&C/CO NT/01/2005-06 DT: 29-03-06	USD 4935000	31-10-08	31-10-10 31-8-11 31-12-12 30-3-14	30-3-14
2*	18-40 GHz Spiral Antenna with Radome	M/s IMC MW Industries L td., Israel	DARE/FPD/AEW&C/PO-01/2006-07 Dt.22-5-06	USD 26400	10-12-10	31-3-11	14-7-11
3	Counter Measure Dispensing Systems (CMDS)	M/s Bharat Dynamics Ltd, Hyderabad	PO:3481/DARE/LPD/AEW &C (SPS) -03/2005-06	₹ 2.83 crore	31-3-07	31-3-09 31-12-10	17-12-10
4	RF Cables	M/s Radiall, France	DARE/FPD/AEW&C/PO-02/2006-07 Dt.22-8-06	EURO-22339.20	4-12-06	-	19-12-06
5	Interferometer Antenna Array System (IAAS)	M/s. EDO Corporation NY, USA	DARE/FPD/AEW&C(ESM)/-01/2007-08 Dt.6-7- 07	USD 1500256	28-2-09	-	15-1-09
6*	Front End Amplifier-Front End Receiver ( FEA-FER)	M/s AKON INC, USA	DARE/FPD/AEW&C(ESM)/-03/2007-08 Dt.17-10-07	USD 893200	16-10-08	16-10-08	12-9-14 16-3-15 21-1-15
7	0.5 – 18 GHz Broad band Equalizer with ESS-P/N A90-MX002	M/s AKON INC, USA	DARE/FPD/AEW&C(ESM)/-04/2007-08 Dt.26-10-07	USD 26000	30-4-08	30-6-08 9-12-08	12-8-08 29-12-08
8	Supply of PFMG application software for ESM system	M/s EWAS Technologies Pvt Ltd Bengaluru	4328/DARE/LPD/AEW&C (ESM)-09/2009-10 dt. 3-8-2009	₹85,00,000	2-8-10	12-8-11	8-1-10
9	Avionics Grade Display and Control Unit (AGDCU)	M/s BEL, Bengaluru	4439/DARE/LPD/AEW&C (ESM) 26/2009-10 dt.29-4-2010	₹2.31 crore	29-10-10	25-1-11	25-1-11
10	Front End Amplifier-Front End Receiver ( FEA-FER) QT	M/s AKON INC, USA	DARE/FPD/AEW&C(ESM)/-02/2010-11 Dt.30-4- 10	USD 104000	31-8-10	15-11-11 31-3-13	10-3-13
11	Qualification Testing (QT) on 0.5-18 GHz and 18-40GHz Spiral Antennas	M/s IMC MW Industries Ltd., Israel	DARE/FPD/AEW&C(ESM)/-06/2010-11 Dt.8-9- 10	USD 45936.52	31-8-10	11-5-11 11-7-11	11-5-11 11-7-11
12	Switch Matrix Module Model No. A35-MX 141	M/s AKON INC, USA	DARE/FPD/AEW&C(ESM)/-01/2011-12 Dt.23-3- 11	USD 255000	30-11-11	31-3-12 31-5-12	28-9-12
13*	Front End Amplifier-Front End Receiver ( FEA-FER) Model No: A25-MH 229	M/s AKON INC, USA	DARE/FPD/AEW&C(ESM)/-03/2011-12 dt June 2011	USD 1402038	31-1-12	30-4-13 26-3-14	26-3-14
14	Rugged Ethernet LAN Switch adpl P/N AcomEth 12-211-12-AG	M/s Alligator Design Pvt Ltd, Bengaluru	4663/DARE/LPD/AEW&C (E)-09/2010-11 dt.15-12-2010	₹179000	6-7-11	29-12-11	29-12-11
15	MILDS Sensor-AN/AAR 60 IN1.Part No. 1000005803 (50.2817.918.00)	M/s Alpha Design Technologies Pvt ltd, Bengaluru	4777/DARE/LPD/AEW&C (S)-15/2010-11 dt. 31-3-11	₹46800000	1-6-11	-	12-5-11

\* Reasons for delay in respect of three supply orders are indicated below -

**SI No. 6 and 13**

There was abnormal delay in receipt / acceptance of two major items: (i) Front End Amplifier (FEA) – Front End Receiver (FER) received (October 2008) was actually accepted by LRDE in January 2015 due to time taken by the vendor for qualification testing (ii) M/s ELTA, Israel took more than five years to complete delivery (March 2014 as against October 2008) of all items of MRDSP due to delay in finalising the system configuration, ICD finalisation, System development, etc., by DARE which affected ESM-SPS schedule.

**SI No.2**

DARE procured (July 2011) DTOA<sup>5</sup> antennas with radomes for ESM from M/s IMC Israel. However, radomes had developed cracks during ground testing and flight trials made in 2011. As a result, CABS could not conduct envisaged flight sorties (20 sorties) of ESM. DARE received modified radomes only in January 2015 and functional testing of these antennas with modified radomes were completed in February 2015 and supplied (March 2015) to CABS.

---

<sup>5</sup> Differential Time of Arrival



**Annexure - XI**  
(As referred in Para 4.1.1 and 4.1.2.3)

**Status of Land Acquired by the Company as on 31 March 2014**

<b>Complex/ divisions</b>	<b>Total land held</b>	<b>Land and building Acquired by the Company but deed not executed</b>	<b>Land transferred to other agencies pending execution of deeds</b>	<b>Land leased to other agencies</b>	<b>Land under litigation and encroach ment</b>
	<b>(in acres)</b>				
Bengaluru Complex	2,184.86	0	137.22	149.081	11.96
Nashik	4,620.13	265.70	0	890.92	1.34
Koraput	3,121.15	0	100.00	4.944	50.21
MDM office	0.06	0	0	0	0
Hyderabad	314.00	0	0	2.29	0
Lucknow	293.00	41.89	0	0.23	0
Korwa	282.40	0	38.68	0	0
Kanpur	429.03	429.03	0	34.75	0
Barrackpore	29.63	0	0	0	0
Corporate Office	1.08	0	0	0	0
<b>Total</b>	<b>11,275.34</b>	<b>736.62</b>	<b>275.9</b>	<b>1,082.215</b>	<b>63.51</b>

**Annexure - XII**  
(As referred in Para 4.1.2.1)

**Market Value of 220 Survey Numbers**

							(₹ in lakh)
Sl. No.	Village	Total Survey numbers	Acre	Guntas	Market rate per acre	Market rate per gunta	Value of Land
1.	Vibuthipura	48	89	831	487	12.175	53460.43
2.	Doddanekundi	17	16	366	406	10.15	10210.9
3.	K.G. Srinivasapura	8	11	93	65	1.625	866.125
4.	Benninganahalli	1	3	11	731.25	18.28125	2394.844
5.	Byappanahalli	6	0	96	195	4.875	468
6.	Belur	19	52	335	49	1.225	2958.375
7.	Kempapura	5	37	96	162	4.05	6382.8
8.	Konenaagrahara	34	45	647	325	8.125	19881.88
9.	Yemlur	19	46	348	162	4.05	8861.4
10.	Kodihalli	15	33	279	487	12.175	19467.83
11.	Marathehalli	3	4	61	406	10.15	2243.15
12.	K.G. Thippasandra	14	32	183	366	9.15	13386.45
13.	K.G. Byrasandra	10	18	181	171	4.275	3851.775
14.	B.M. Kaval	4	6	87	211	5.275	1724.925
15.	Challaghata	17	10	222	244	6.1	3794.2
	<b>TOTAL</b>	<b>220</b>	<b>402</b>	<b>3836</b>			<b>149953.1</b>

**Annexure - XIII**  
(As referred in Para 4.1.2.1)

**Land not in name of HAL but included in Compendium**

(₹ in lakh)

SI. No.	Village		Survey Numbers	Extent of land as per Compendium/ Disinvestment data		Total Land not in Name of HAL		Market rate per acre	Market rate per gunta	Market Value of Land not in name of HAL
	SI. No.	Name		Acres	Guntas	Acres	Guntas			
1	A	Challaghatta	33/1	0	13	0	13	244	6.1	79.3
2			33/5	0	6	0	6	244	6.1	36.6
3			38/1	2	18	2	0	244	6.1	488
4	B	Yemalur	22/6	0	10	0	10	162	4.05	40.5
5			22/07	0	18	0	18	162	4.05	72.9
6			24/11	0	6	0	6	162	4.05	24.3
7	C	K G Byrasandra	53	5	31	5	31	171	4.275	987.525
8			66	0	4	0	4	171	4.275	17.1
9			78/1	0	3	0	3	171	4.275	12.825
10			90/2	1	17	1	17	171	4.275	243.675
11			91	0	29	0	29	171	4.275	123.975
12			92/4	0	38	0	38	171	4.275	162.45
13	D	Kodihalli	47/1	2	2	2	2	487	12.175	998.35
14		B M Kaval	6/7	3	35	3	35	211	5.275	817.625
15			6/8	3	10	3	10	211	5.275	685.75
16	F	Doddanekkundi	96/5	0	23	0	23	406	10.15	233.45
17			97/1	2	8	2	8	406	10.15	893.2
18			97/2	1	21	1	21	406	10.15	619.15
19			113/1	1	34	1	34	406	10.15	751.1
20			157	1	10	1	10	406	10.15	507.5
21	G	Konenagrahara	50/3	4	10	2	0	325	8.125	650
22			43	0	22	0	22	325	8.125	178.75
23			37	0	11	0	11	325	8.125	89.375
24			38	4	16	4	16	325	8.125	1430
25			48	3	0	3	0	325	8.125	975
26	H	K G Thippasandra	59/1	1	0	1	0	366	9.15	366
27			60	1	1	1	1	366	9.15	375.15
28			61	0	19	0	19	366	9.15	173.85
29			62	7	1	7	1	366	9.15	2571.15
30			64	1	0	1	0	366	9.15	366
31			66	2	28	2	28	366	9.15	988.2

Sl. No.	Village		Survey Numbers	Extent of land as per Compendium/ Disinvestment data		Total Land not in Name of HAL		Market rate per acre	Market rate per gunta	Market Value of Land not in name of HAL
	Sl. No.	Name		Acres	Guntas	Acres	Guntas			
32			67	1	0	1	0	366	9.15	366
33			69	7	27	7	27	366	9.15	2809.05
34			70/2	2	19	2	19	366	9.15	905.85
35			72/1	2	8	2	8	366	9.15	805.2
36			72/2	2	10	2	10	366	9.15	823.5
					58	508	56	480		

**Annexure - XIV**  
(As referred in Para 4.1.2.3)

**Sale of Land for which Sale Deed is not executed/ not available**

Sl. No.	Parties to whom land sold by HAL	Reasons for sale of land	Details of Board approval	Location of land	Survey No. of land	Extent of land in acres	Date / year of sale	Amount of Sale Price / Compensation received etc, if any (In rupees)	Whether Sale agreement executed
1.	GTRE	Requirement for GTRE	105 – 20.09.1976	K G Srinivasapura	21,22,23,24	2.33	1976	53,475.00	Sale deed not available. Air force did not come forward for execution
2.	26 ED	Requirement for 26 ED	141- 30.9.1982	Vibhuthipura	81,82,83,84,85	15.26	1982	19,67,000.00	Sale deed not available.
						0.76			
						(Bldg).			
3.	Institute of Aviation Medicine (IAM)	Requirement for Airforce	105- 20.09.1976	Konena Agrahara	1,3,4,5,6,7, 80	7.3	1976	2,90,973.00	Sale deed not available.
						4.9			
						(Bldg).			
4.	Railways	Requirement for Railways	191 - 16.11.1990	Benniganahalli	12	0.32	1990	32,529.00	Sale deed not available
5.	Army (POL Bulk Depot)	Army	68 - 19.02.1972	Kodihalli	39,40,58	5.1	1972	7,650.00	Sale deed not available
6.	BDA	For Road	113- 26.1.1978	Doddanekkundi	96/1,96/2,9 6/3,96/6,97 /1,97/2	2.45	1996	15,31,416.00	Sale deed not available
7.			28.1.1978	Kodihalli	58	0.61		12,413.00	Sale deed not available
8.	ASTE	Requirement for Sister Organisations	144 – 29.01.1983	K G Srinivasapura	10,15,16,17, 18,20	15.99	1983	4,23,735.00	Sale deed not available. Air force did not come forward for execution
			144 – 29.01.1983	Marathahalli	36,37,38,39	18.46	1983	4,52,270.00	
			178 – 22.09.1988	Marathahalli	24,37,39	5.04	1988	2,48,744.00	
			144 – 29.01.1983	Belur	30,31,44,48, 49,50,52	22.4	1983	4,51,360.00	
			178 – 22.09.1988	Belur		0.91	1983		
			178 – 22.09.1988	Belur		0.55	1988	22,110.00	
			144 – 29.01.1983	Belur		2.35	1983	53,818.56	
			144 – 29.01.1983	Belur		1.478	1983	33,848.44	
			144 – 29.01.1983	Belur		3.05	1983	69,849.62	
			192 – 30.01.1991	Belur		1	1991	69,770.00	
			144 - 29.01.1983	Belur		0.25	1983	5,725.38	
			178 –	Kempapura		8	1988	5,59,176.00	

Sl. No.	Parties to whom land sold by HAL	Reasons for sale of land	Details of Board approval	Location of land	Survey No. of land	Extent of land in acres	Date / year of sale	Amount of Sale Price / Compensation received etc, if any (In rupees)	Whether Sale agreement executed
			22.09.1988						
9.	Army Land Project	Exchange of land	264-18.08.2003	Doddanekkundi	146,147,156	5.0	26.04.2005 (Brrack pore) and 02.03.2011 (Bengaluru)		Handing over taking over report
10.	Muslim Welfare Trust.	Requirement for Muslim welfare trust	210-4.3.1994	0.4	29.10.1998	1,91,620.00			Sale deed not executed
11.	DGCA (NAA)	Requirement for DGCA	105-20.9.1976	Konena Agrahara	1,3,4,5,6,7 &80	13.179	1976	9,99,391.00	Sale deed not available.
12.	BEML	Requirement for BEML	150-13.2.1984	Thippasandra & K G Byrasandra	62,65,68,69,70,72,68,69,70,71,72,73,75,76,77,78,79,80,81,82,84,85,93,63	81.262	1965	99.00	Sale deed not executed
13.	SBI	Requirement for SBI	210-4.3.1994	Konena Agrahara	77	0.225	25.06.1997	14,73,900	Rectification Sale deed not executed

**Annexure-XV**  
(As referred in Para 4.2.1)

**JVCs formed by HAL**

(₹ in crore)

Sl. No.	Name of the joint venture company & Date of incorporation	Name of the partners and composition of share capital	Paid up capital as on 31.3.2014	HAL share of investment as on 31.3.2014	Objective of formation
1	BAe-HAL Software Limited (BAe-HAL) 9 February 1993	HAL -49%  BAe Systems plc, UK - 40%  BAeHAL Employees welfare Trust - 11%	6.00	2.94	(i) To develop, design, improve, market, sell, lease, loan and support software, firmware and computer programs. (ii) To provide and perform technical, commercial, research, consultancy and other services in the fields of computer technology/ computer software/ systems. (iii) To operate and manage computer systems. (iv) To undertake and execute turnkey projects in the forgoing fields. For the above purposes, it was allowed the JVC to qualify as a 100% Export Oriented Unit (EOU).
2	Indo Russian Aviation Limited (IRAL) 12 September 1994	<b>Indian Partners:</b> HAL - 48% ICICI - 5%  <b>Russian Partners:</b> RAC MiG - 31% Ryazan -10% Aviazapchast - 6%	1.95	0.94	To carry out the following activities in India and third countries except in Republics of the former USSR: (i) Overhaul and repair of the Aircrafts, engines, aggregates and systems. (ii) Product support for maintenance and operation of the aircraft. (iii) Modernization and re-equipping of aircraft, engines and aggregates. (iv) Life extension of the aircraft engines and aggregates. (v) Supply of the aircraft, engines, aggregates and spares. (vi) Supply of ground and role support equipment, etc.

					(vii) Rendering engineering consultancies, TOT, Know-how and technical assistance. (viii) Setting up repair and overhaul facilities in third countries on turnkey basis, etc.
3	Snecma HAL Aerospace Private Limited 24 October 2005	HAL - 50%  Snecma, France-50%	22.80	11.40	To establish a center of excellence for production manufacture, buy, sell, market, distribute, export, import, deal in on wholesale basis, assemble, fit, reload, repair, convert, alter, maintain and improve all types of of Precision Aero Engine components and assemblies as an Export Oriented Unit (EOU).
4	SAMTEL HAL Display Systems Limited 25 January 2007	HAL -40 %  Samtel Display System Ltd, New Delhi -60 %	4.00	1.60	To design and develop new generation display systems for airborne and ground applications for Indian aircrafts as well as international market. Later on diversify into civil & industrial sector in India and abroad.
5	HAL Edgewood Technologies Private Limited 27 April 2007	HAL -50 %  Edgewood Ventures LLC, USA - 26%  Edgewood Technology Private Ltd., Bangalor - 24%	6.00	3.00	(i) To set up design center for design and development of chip for data encryption and digital design center. (ii) Application for Radar data simulation and performance evaluation of various algorithm in different conditions. (iii) To develop CNS for Defence and Civil applications as well as TOT for microwave sub-systems and gyros.
6	HALBIT Avionics Private Limited 1 May 2007	HAL -50%  Elbit Systems Ltd, Israel -26%  Merlinhawk Associates Private Ltd, Bengaluru - 24%	7.65	3.83	Design, development & marketing of airborne avionics products and systems; mission computers, display computers and displays for Indian & International Markets.
7	INFOTECH HAL Limited 23 August 2007	HAL -50%  Infotech Enterprise Limited -50%	4.00	2.00	Engineering services in the field of aero engines, technical publications and execution of work under offset programme.



8	HATSOFF Helicopter Training Private Limited 16 January 2008	HAL -50% CAE, Canada - 50%	76.81	38.40	To provide and market military and civil helicopter pilot training services through the operation of a flight training center at Bengaluru by setting up and operating Rolls-On/Rolls-Off Full Mission Simulators (FMS) and various flight training devices (Training equipment) to be operated by the JVC.
9	TATA HAL Technologies Limited (Formerly INCAT HAL Aero Structure Limited) 28 May 2008	HAL-50% TATA Technologies Limited - 50%	10.14	5.07	(i) To take advantage of the global aerospace demand by leveraging the strengths of the parties i.e. Aerospace domain knowledge of HAL and the marketing network and programme management experience of INCAT. (ii) To be a market leader for providing engineering and design solutions and services in the area of aero structures and activities under offset programmes. (iii) To establish marketing network, customer base, best business practices, proven global delivery model. (iv) To leverage the competitive advantages for accelerated market penetration.
10	International Aerospace Manufacturing Private Limited (IAMPL) 16 July 2010	HAL - 50% Rolls Royce -50%	85.00	42.50	Manufacture of shrouds for Rolls Royce in the civil aerospace sector as an 100% Export Oriented Unit (EOU).
11	Multirole Transport Aircraft Limited (MTAL) 1 December 2010	HAL - 50% Russians -50% (UAC-TA & Rosoborone Export)	226.93	113.46	Design, development, manufacture, marketing and product support of Multirole Transport Aircraft.
			<b>Total</b>	<b>225.14</b>	

**Annexure - XVI**  
(As referred in Para 4.2.2)

**Performance of JVCs**

(₹ in crore)

Sl. No.	Name of the JVC	Paid Up Capital	HAL Share	Accumulated Profit(+) / Loss(-)	Amount Provided for Diminution
	<b>JVCs with Accumulated Loss</b>				
1	SAMTEL HAL Display Systems Limited	4.00	2.00	-0.69	
2	HALBIT Avionics Private Limited	7.65	3.83	-4.43	3.21
3	INFOTECH HAL Limited	4.00	2.00	-3.33	1.66
4	HATSOFF Helicopter Training Private Limited	76.81	38.40	-102.16	38.40
5	TATA HAL Technologies Limited	10.14	5.07	-7.25	3.63
6	HAL Edgewood Technologies Private Limited	6.00	3.00	-9.79	3.00
7	International Aerospace Manufacturing Private Limited	85.00	42.50	-21.12	
	<b>JVCs earning Profits</b>				
8	BAe-HAL Software Limited	6.00	3.00	12.08	
9	Indo Russian Aviation Limited	1.95	0.94	60.44	
10	Snecma HAL Aerospace Private Limited	22.80	11.40	11.41	
	<b>JVCs yet to commence Production</b>				
11	Multirole Transport Aircraft Limited	226.93	113.46	1.18	
		<b>451.28</b>	<b>225.60</b>		<b>49.90</b>