13

STANDING COMMITTEE ON DEFENCE
(2015-2016)

(SIXTEENTH LOK SABHA)

MINISTRY OF DEFENCE

[Action taken by the Government on the observations / recommendations contained in the Fifth Report of the Committee (Sixteenth Lok Sabha) on Demands for Grants(2014-15) of the Ministry of Defence on Ordnance Factories and Defence Research and Development Organisation (Demand Nos. 25 & 26)]

THIRTEENTH REPORT

LOK SABHA SECRETARIAT

NEW DELHI

December, 2015/ Agrahayana, 1937 (Saka)

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Presented to Lok Sabha on 16.12.2015

Laid in Rajya Sabha on 16.12.2015

LOK SABHA SECRETARIAT

NEW DELHI

December, 2015/ Agrahayana, 1937 (Saka)

CONTENTS

PAGE.

COMPOSITION OF THE STANDING COMMITTEE ON DEFENCE (2015-16)

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INTRODUCTION

I, the Chairperson of the Standing Committee on Defence (2015-16), having been authorised by the Committee to submit the report on their behalf, present this Thirteenth report on `Action Taken by the Government on the Observations/Recommendations contained in the Fifth Report of the Standing Committee on Defence(16th Lok Sabha) on Demands for Grants of the Ministry of Defence for the year 2014-15 on Ordnance Factories and Defence Research and Development Organisation (Demand Nos. 25 & 26)'.

2. The Fifth Report was presented to Lok Sabha and laid in Rajya Sabha on 22.12.2014. It contained 15 observations/recommendations. The Ministry of Defence furnished Action Taken Replies on all the Observations/Recommendations in July 2015.

3. The draft Action Taken Report was considered and adopted by the Committee at their Sitting held on 10.12.2015.

4. For facility of reference and convenience, Observations/Recommendations of the Committee have been printed in bold letters in the Report.

5. An analysis of action taken by the Government on the Observations/Recommendations contained in the Fifth Report of Standing Committee on Defence (16th Lok Sabha) is given in Appendix II.

New Delhi;
11 December, 2015
20 Agrahayana, 1937 (Saka)

Maj Gen B C Khanduri, AVSM (Retd),
Chairperson,
Standing Committee on Defence

CHAPTER – I

REPORT

This report of the Standing Committee on Defence deals with action taken by the Government on the recommendations/observations contained in the Fifth Report (16th Lok Sabha) on `Demands for Grants of the Ministry of Defence for the year 2014-15 on Ordnance Factories and Defence Research and Development Organisation (Demand No. 25 & 26)' which was presented to Lok Sabha and laid in Rajya Sabha on 22 December 2014.

2. The Committee's Fifth Report (16th Lok Sabha) contained Fifteen recommendations/observations on the following aspects :-

Para No.	***Subject***
1	**Under expenditure**
2	**Budgetary Provisions**
3	**Delays in projects' executions**
4	**Research and Development**
5	**Manpower**
6	**Quality Assurance**
7	**Budgetary provisions for defence Research and Development**
8 & 9	**Manpower**
10	**Performance audit of the work of scientists of DRDO**
11	**Indigenisation Research and Development Activities**
12	**Delay in Projects**
13	**Closed projects**
14	**Nuclear, Biological and Chemical (NBC)**
15	**Collaboration with universities/academic institutions**

3. Action Taken Replies have been received from the Government in respect of all the recommendations/observations contained in the Report. The replies have been examined and the same have been categorised as follows :-

(a) Observations/Recommendations which have been accepted by the Government:

Para Nos. 4,5,8,9,10,11,12,14,15

(09 Recommendations)

These may be included in Chapter II of the Draft Report.

(b) Observations/Recommendations which have been accepted by the Government and to be commented upon:

Para Nos. 1,3,6,7,13

(05 Recommendations)

These may be included in Chapter II of the Draft Report.

(ii) Observations/Recommendations which the Committee do not desire to pursue in view of the replies received from the Government:

Para Nos. Nil

(00 Recommendation)

These may be included in Chapter III of the Draft Report.

(iii) Observations/Recommendations in respect of which replies of Government have not been accepted by the Committee which require reiteration and commented upon:

Para Nos. 2

(01 Recommendations)

This may be included in Chapter IV of the Draft Report.

(iv) Observations/Recommendations in respect of which Government have furnished interim replies:

Para No. Nil

(00 Recommendation)

4. The Committee desire that the Ministry's response to their comments made in Chapter 1 of this Report to be furnished to them at the earliest and in any case not later than six months of the presentation of this Report.

Recommendation (Para No. 1)

A. Under expenditure

5. The Committee had recommended as under:

"Indian Ordnance Factories were provided a fund of Rs. 3,666 crore during 11th Five Year Plan from 2007-12 for modernization against which an expenditure of Rs, 2,927 crore was incurred. Hence, Rs. 739 crore was left unutilized. The Committee observe that Ordnance Factory Board manages 41 manufacturing Units and 32 other establishments, nevertheless around 20% amount allocated for modernization remained unutilized during the 11th plan period. The under utilization of fund also indicate that Ordnance Factory Board has not been so forthcoming in modernizing Ordnance Factories. The issue of augmenting capacity for manufacturing has not been properly addressed which has resulted in delays of many projects like T-90 tanks, Pinaka Rocket system, etc. The Committee express their anguish over the under utilization of Nations funds. This shows sheer callousness on the part of the Ordnance Factory Board. The Committee are of the opinion that had there been less allocations, this amount could have utilized in some other head. The Committee opine that alongwith adequate budgeting, optimum utilisation should also be given due importance. The Committee also desire that funding and expenditure pattern should be promptly dealt with under intimation to this Committee".

6. The Ministry in its action taken reply, has stated as under:

"Ordnance Factory Board was provided with Rs. 3666 Crore during the 11th plan period, out of which an expenditure of Rs. 2927 Crore was incurred. The under expenditure of Rs. 739 Crore occurred for the reasons as under:

a) BE projection is made one year before the year of expenditure, based on the committed liability and potential liability. However, many cases results in re-tendering due to certain reasons (as enumerated below) and in turn the actual expenditure could not be met to the extent of BE projection:

   (i) Most of the machines procured by Ordnance Factory Board(OFB) are special purpose machines, tooled up and normally not available off the shelf.

(ii) Vendor base for the above kind of machines is limited.
(iii) There are limited sources for ammunition and explosive manufacturing plants.
(iv) Because of financial crisis, major suppliers in Europe failed to respond to tender enquiries resulting in re-tendering of cases and also failed to execute the supply timely.

b) The estimated cost at the time of demand preparation is based on the Budgetary Quotation obtained from the prospective suppliers. However, many a time the actual expenditure in procurement of plant & machinery through competitive bidding is less than the budgetary quote.

Modernization drive has been speeded up and in the first two years of XIIth Plan (2012-13 & 2013-14), the funds have been utilized to the extent of 100% i.e. Rs. 1939.39 Crore have been spent against BE of Rs. 1933.69 Crores even though there was a severe fund crisis in the year 2012-13 due to which Ordnance Factory Board(OFB) had to prioritise its investment plan. Ordnance Factory Board(OFB) has envisaged an investment plan of Rs. 1660 Crore in the current financial year 2014-15".

7. **The reasons given for the gap between the budgetary provisions and the actual expenditure by Ordnance Factory Board(OFB) seem to be genuine and are well taken by the Committee. However, at the same time, the Committee opine that a better assessment of the total budgetary requirements can be made by the Ordnance Factory Board(OFB) at the budgetary stage itself so that the gap between the budgetary provisions and the actual expenditure which in the present year is about Rs.739 crore can be reduced to the minimum possible level. The Committee feel that this could be done by meticulous planning and correct assessment of defence equipment requirements. Necessary initiatives taken in this regard should be intimated to the Committee.**

Recommendation (Para No. 2)

B. Budgetary Provisions

8. The Committee had recommended as under:

"During the deliberations, it was revealed that due to non-availability of funds in 2013-14, expenditure was prioritized and restricted to Rs. 186 crore for augmentation of capacity for manufacturing of T-90 Tanks from 100 to 140 number per annum. The Committee are surprised at this meagre allocation for such an ambitious project. While seeking clarifications for such lesser

allocation the Committee desire that enough allocation should be provided to augment the capacity of T90 tanks so that adequate supplies are made to Army within the stipulated time frame. Accordingly, this Committee be intimated about the initiatives taken in this regard".

9. The Ministry in its action taken reply, has stated as under:

"The project for manufacturing capacity augmentation of T-90 Tanks from 100 to 140 nos. per annum was sanctioned in September, 2011 and there were delays in initial period of project execution, primarily in tendering of machines. Subsequently in the year 2013-14, due to budget constraint the expenditure was prioritised and the investment plan against the project was restricted to Rs. 186.00 Crore. In the meanwhile the project is under review in light of firm indent being available for only 236 T-90 tanks from the Army HQ. It is equivalent to a workload of only two and a half year approx. at HVF Avadi (existing capacity being 100 T-90 tanks per annum). Even this order was placed after a gap of eight years".

10. **The Committee note that the Ministry has not replied to the part of the recommendation regarding providing enough allocation to augment the capacity of T90 tanks so that adequate supplies are made to Army within the stipulated time frame. Therefore, the Committee reiterate their recommendation on this aspect. A new fact has been brought before the Committee in the Action Taken Replies about lesser number of orders of T-90 tanks from the Army HQ, which was placed after a gap of 8 years. In this connection, the Committee would like to know the specific reasons for such a wide gap. They are of the view that the delays in placing orders should be avoided in future. It is also suggested that regular orders should be given by the Services to keep Ordnance Factories operational and plan their production schedule in advance.**

Recommendation (Para No. 3)

C. Delays in projects' executions

11. The Committee had recommended as under:

"While examining the subject, the Committee noted that there have been very long gestation periods in case of different projects. For example, the project for creation of capacity for manufacturing of MBT Arjun @ 30 numbers per annum was sanctioned in May 2002 and the project could be completed only in August, 2011. This resulted in a time overrun of ten years. Also, Ordnance

Factory project, Nalanda was initiated during the 10th Plan and has been carried forward to the 12th Plan. Besides this, the project for creation of capacity for manufacturing of T-90 tanks @ 100 numbers per annum was sanctioned in December, 2003. Ordnance Factory Board started manufacturing 100 tanks per annum, inclusive of tanks manufactured from SKD (Semi-knocked down kits) from 2009-10. Besides these, many projects which started in 2010 such as creation of capacity for manufacturing of T-72 variants @ 50 numbers per annum, augmentation of capacity for manufacturing of armoured vehicles engines from 350 to 750 per annum, augmentation of capacity for manufacturing of spares required in overhauling of T-72 & T-90 tanks have not even attained 50% completion even after a lapse of 4-5 years. The Committee take serious note of the position with regard to long gestation of periods and delays in project executions of Ordnance Factories projects and desire that all-out efforts be made to streamline the project execution. Any kind of indecisiveness or callousness is not acceptable to the Committee. The Committee want this that matter should be looked into by a high powered fact finding Committee so that accountability of the all concerned be fixed. In this context the Committee are given to understand that certain Ordnance Factories are facing capacity constraints due to explosive safety limit restrictions on building used for ammunition production. They have been further informed that steps are being taken to augment capacity of certain Ordnance Factories. Besides this in the past also Ordnance Factory Board had problems in meeting the target of manufacturing the T-90 tanks, BMP-II and Pinaka Rocket due to various constraints such as delayed product support from the Original Equipment Manufacturer (OEM), discontinuity in production line due to non-availability of indents from Army and also certain issues involving modification of design. The Committee are not happy with such a sorry state of affairs prevalent in respect of project executions. They are of the opinion that these problems could have been envisaged at the planning stage itself. Hence the Committee want that adequate steps should be taken to adhere to the targets both in terms of quality and time under intimation to them".

12. The Ministry in its action taken reply, has stated as under:

"The creation of infrastructure facilities for manufacture of MBT Arjun was completed by Feb, 2006 i.e. within the schedule time of 78 weeks. However, a minor civil work comprising only 2% of the project cost of construction of 2 nos of type V residential quarters, which formed a part of MBT Project, was delayed and accordingly only the financial closure was delayed.

The delay in T-90 project for creating a manufacturing capacity of 100 Nos per annum was due to non-availability of product support from Rosoboronexport, Russia and non-availability of ToT documents from OEM.

The likely completion status of the projects started in 2010 is as follows:

Name of the Project	Status of the Project	Delay
T-72 Variants @ 50 Nos. p.a.	Anticipated completion of the project – Mar, 2015	18 months
Augmenting the capacity of Armoured Vehicles Engines from 350 Nos. to 750 Nos. p.a.	Anticipated completion of the project – Dec, 2016.	38 months
Spares required in overhauling of T-72/T-90 Tanks	Anticipated completion of the project – Dec., 2015	26 months

The progress of all the above projects is regularly monitored in the concerned Ordnance Factory as well as at the Ordnance Factory Board(OFB) level.

Ordnance Factory Board has been directed to take immediate measures to complete the projects at the earliest. Simultaneously Ordnance Factory Board has also been asked to take the feedback in the form of 'lessons learned' from the officials involved in project execution so that the reasons for delay are captured and reflected upon so as not to repeat them in future".

13. The Committee are happy to note that the Ordnance Factory Board(OFB) has taken the concerns raised by the Committee in terms of the long gestation periods in the completion of the projects and has taken steps to complete all the projects within a scheduled time period including taking feedback from the officials involved in project execution to assess the reasons for the delay in the projects. This will be fruitful in avoiding delays in future projects. However, the Committee feel that consistent efforts must be made by the Ordnance Factory Board(OFB) to further reduce the period of delay in the execution of their projects which besides optimizing the use of manpower, will also thereafter contribute towards the reduction of expenditure in the projects.

Recommendation (Para No. 6)

D. Quality Assurance

14. The Committee had recommended as under:

"The Committee opine that besides timely production, it is also equally pertinent to have quality production. During the deliberations, it was revealed that earlier there were certain quality problems with the ordnance factory products. However, the representatives of Ministry of Defence assured that

now they are taking a lot of initiatives in ensuring that everything is manufactured as per the process schedule. As regard the defects due to improper handling of ammunition and storage in ammunition depots, improper maintenance of weapon system, improper handling of ammunition and weapon during firing or design deficiency, the Committee opine that quality of products has to be ensured at all levels. Excellent quality is absolutely necessary in achieving indigenization and self-reliance in respect of different high-end technology systems and sub-systems. The Ordnance Factory Board(OFB) should take responsibility of training its end users (the Service personnel) in proper handling of ammunition and weapon. Inspite of these remedial measures, if the lacuna continue to exist, then accountability should be fixed and Committee be informed about the steps taken".

15. The Ministry in its action taken reply, has stated as under:

"Factories have taken lot of initiatives to conform the manufacturing of products as per ToT/AHSP documents.

Regarding the defects due to improper handling and storage in ammunition depots, improper maintenance of weapon system, improper handling of Ammunition & Weapons during firing or design deficiency, the following comments are furnished:

(i) For ammunition items, Ammunition Maintenance Instruction (AMI) and Ammunition Maintenance Kit (AMK) are being issued by AHSP documents.
(ii) For training of users, it is proposed that user may depute group of persons to the relevant Ordnance factories for training & guidance on handling and storage in ammunition depots, maintenance of weapon system, handling of Ammunition & Weapons during firing.
(iii) DDP has issued instruction for audit of QC/QA practices in OFs by a team involving representatives from Users, Quality Assurance agencies, DRDO and production Agencies. It is proposed that for audit of storage, handling and maintenance at user end to be included in the scope of audit.

Process of defect investigation by a composite team of DGQA & Ordnance factory already exists. Remedial actions are taken based on the report. Accountability is fixed based on findings of the inquiry report. In a specific case of failure of PTA Lakshya Parachute, manufactured at Ordnance Parachute Factory Kanpur, concerned workmen, Staff and Officers even upto SAG level in the factory were issued advisory notes pending inquiry into the failure. The inquiry by a composite team of representatives from all stakeholders including the User is a still continuing and further necessary action shall be taken based on the inquiry report".

16. **The Committee note that some initiatives have been planned to be taken by the Ordnance Factory Board(OFB) so as to ensure excellent quality of their products and minimize complaints from the end-users. However, the Committee earnestly desire that concrete action has to be taken in a fixed time in consonance with long term planning. In this regard, the Committee would like to be intimated about the implementation of these measures such as training of users, audit of Quality Control(QC)/Quality Assurance(QA) practices etc. and a detailed statement of the progress made in this regard may be furnished to the Committee within three months of the presentation of this report.**

Recommendation (Para No. 7)

E. Budgetary Provisions for Defence Research and Development

17. The Committee had recommended as under:

> "The Committee note that the Defence Research and Development Organization (DRDO) projected an amount of Rs. 18495.46 crore, however, it has been allocated an amount of Rs.15282.92 crore only thereby a shortfall of Rs. 3212.54 crore. The Committee also note that out of the total defence budget the share of DRDO was 6.98% in 2009-10, which reduced to 5.37% in 2013-14. However, this share has slightly improved to 6.67% in 2014-15. The share of defence research and development budget to GDP is also declining over the years. It has reduced to 0.09 per cent in 2013-14 from 0.13 per cent in 2009-10. The Committee also note that DRDO gives its budgetary projection, based on the ongoing projects/programmes and future requirements, but it has been allocated a meager amount and out of which nearly 80% is utilized for Mission Mode Projects with deliverables for Armed Forces. The Committee feel that shortfalls in budget affects the pace of technological and infrastructural development since ongoing development activities have to be re-prioritized. Now-a-days there is a need to lay emphasis on indigenization of defence products but it can only be achieved with adequate budgetary support. The Committee desire that all possible measures should be taken to meet the budgetary requirement of DRDO. The Committee may be informed about the measures so taken".

18. The Ministry in its action taken reply, has stated as under:

> "Prior to 2014–15, Defence Research and Development Organisation (DRDO) was facing problem of funds crunch. Many on-going projects were reprioritised due to inadequacy of funds. During 2014 – 15, Government has

increased Defence R&D Budget substantially, particularly in “Capital Head”. DRDO has requested for increase in budget in “Revenue Head” also. At present, Defence R&D Budget is approximately 6.67% of the Defence Budget which is insufficient for proper technological development. Justice towards indigenization can be done only if the budget of Defence R&D is raised to at least 8 to 10% of the Defence Budget. DRDO has prepared a Long Term Technology Perspective Plan (LTTPP) that aligns with the Services Long Term Integrated Perspective Plan (LTIPP) to ensure strengthening and competitive growth in indigenous Defence technologies which is under implementation. Government is considering request of DRDO for giving preference to indigenous products in defence acquisition and create a category ‘Make in India/Developed by DRDO".

19. The Committee note with concern that the work of the DRDO has been suffering and many on-going projects had to be re-prioritised due to inadequacy of funds. The Committee are in agreement with DRDO that for indigenisation of defence products, budget of DRDO should be increased to the tune of 8% to 10% of Defence Budget. The Committee therefore, reiterate their recommendation that measures should be taken to meet the budgetary requirements of DRDO. However, the Committee may be informed of the current status of LTTPP and LTIPP of DRDO. The Committee also wish that the budget expenditure of DRDO should be more result oriented and realistic. The Committee may be informed about the measures so far taken.

Recommendation (Para No. 13)

F. Closed Projects

20. The Committee had recommended as under:

"The Committee note that many projects including development of cargo ammunition, development of GPS Based System as an Alternative to Fire Direction Radar, development of 30 mm Fair Weather Towed AD Gun System, development of 30 mm Light Towed AD Gun System have been closed thus wasting a considerable amount of public money. The Committee desire that they be informed about the basis on which these were included and specific reasons which forced the Government to close these projects. In this connection, the Committee feel that before commencing a project and channelizing money towards it though calculation should be made for the project so that it may not be dropped before its completion and not even a single penny of the public is wasted in the name of country’s defence".

21. The Ministry in its action taken reply, has stated as under:

"Development of Cargo Ammunition

The project was undertaken in 1998 based on requirements from user. The objective was to develop cargo bomblets for 105 mm, 130 mm, 155 mm guns and 120 mm Mortar and 122 mm Remotely Delivered Munition System (RDMS). The project was to demonstrate assembly and trials in all calibers. Bomblets being the same for all the calibers and carrier systems was only different, it was decided to first prove the bomblets in 130 mm caliber and then evaluate it in all the carrier systems.

To prove the design aspects, expenditure was incurred by all the participating labs for procurement of shells, bomblets, fuzes, stabilizing systems, packing systems, propellant, initiation systems, conduct of various performance evaluation, qualification level tests, static and dynamic trials.

Under the project, achievement made are establishment of shell, packaging system, stabilizing mechanism, bomblet dispersion mechanism, ejection system, bomblet testing system, lethality for anti tank role and antipersonnel role. The integrated trails also resulted in 70-80% success in direct impact mode and additional 10-15% in Self Destruction Mode. Maximum of 90% success rate was achieved, whereas it was required to achieve 99% success rate to avoid any blind bomblets remaining in the field.

The complex system has been attempted with a good amount of success rate, the project closed with achievements listed above. The experience gained in progress of project has resulted in its utilization in Pinaka project to achieve major milestones at faster rare.

Development of 30 mm Fair Weather Towed AD Gun System

Indian Army has long standing requirement to replace vintage AD guns i.e. 40 mm L70 and 23 mm ZU gun in the service. After continuous interaction and long deliberations with the Users, the GSQR for AD gun system was finalized and GSQR 767 was received in Jan 2000. The main objective of the project was to develop 30 mm Air Defence Gun which would meet qualitative requirements as specified in GSQR 767 and replace in-service AD Gun systems.

In Jan 2001, during review of DRDO projects by VCOAS, it was opined that existing fleet of AD guns i.e.40mm L70 and 23mm ZU gun in the service are in good condition with residual life of 10-15 years. Further during 9^{th}& 10^{th} Plan, these guns are proposed to be upgraded and after upgradation the characteristics of these guns will be superior to that specified in GSQR 767. Further, ADG AD (Arty) Directorate in February 2001, indicated that the

existing AD Guns in our service will be deinducted with effect from 2015 only as against 2006 planned earlier. It was also proposed to convene a meeting to finalize the GSQR as well as calibre of the future AD Gun.

In view of the above developments, it was not possible to effectively progress the Staff Project on 30mm Fair Weather Towed AD Gun. A change in QR at that stage was going result in major changes in the scope of work and hence the action for holding of PDR, manufacture of hardware, etc had not been progressed. Considering major policy shift by Users, Project Monitoring Committee on Armament and High Energy Materials proposed to close the project.

Development of 30mm Light Towed AD Gun System

Draft GSQR based on the General Staff Policy Statement (GSPS) No. 144 on Army Air Defence Equipment for development of Fair Weather Towed Air Defence (AD) Gun was received in Feb 1997. According to the GSPS No. 144, de-induction of 40mm L/70 and ZU-23 mm gun was planned with effect from 2005 and 2006, respectively. Therefore, it was stated that these guns are to be replaced with new Fair Weather Towed Gun System. Hence in anticipation of finalized GSQR, the project for Development of 30 mm Light Towed AD Gun System was undertaken in August 1997.

Main reasons for short closure of the project 'Development of 30 mm Light Towed AD Gun system' were:

(i) Change in GSQR parameters (number of barrels, rate of fire, overall mass, power laying, etc.)
(ii) Allotted funds were not adequate for development of AD gun with servo drive and control system as per new QR.
(iii) PDC extension required due to delayed receipt of finalized GSQR.

As it was not possible to accommodate new Qualitative Requirements(QRs) within the allotted project funds and time frame, decision was taken in the Corporate Review Meeting to close the project and submit statement of case of new project.

Development of GPS Based System as an Alternative to Fire Direction Radar

An R&D project was taken up for technology demonstration to develop a GPS based telemetry system for Pinaka rocket. This system is utilized for tracking a pilot shot to generate certain trajectory parameters. The trajectory data is then extrapolated to get the co-ordinates of the predicted point of impact. This information is then can be used to give correction to the fire units. This enables in achieving first salvo effectiveness by speedy and accurate

engagement of targets. Use of such system can improve the accuracy, which would result in:

(i) Less ammunition required per engagements.
(ii) Reduced mission time and fast response to call for fire.
(iii) More missions per battlefield day.
(iv) Lower demand for and cost on logistic chain.

The following achievements were made:

(i) Development of GPS Sensor Module
(ii) Development of telemetry transmitter with its Antenna
(iii) Integration of GPS-Telemetry Modules as an Onboard Unit
(iv) Integration of Onboard Unit with Pinaka warhead
(v) Ten Units of GPS Receiver and Ten Units of Telemetry Transmitter were developed
(vi) Successful static trials of hardware were carried out

Project Monitoring Committee Meeting held on 24 Oct 2002, took the decision to close the project. Subsequently, Director ARDE constituted a Committee to review the project progress and technical work done and suggest future plan of work. The committee noted that the primary object of this project was to achieve higher accuracy. Three routes were undertaken for accuracy improvement

(i) Fire Direction Radar (FDR)-For rocket registration
(ii) GPS- For rocket registration
(iii) AGAPS- Automatic Gun Alignment and Positioning System.

Of these, the first and third was tried out during the User Trial. It was found that the third route viz the AGAPS system gave the required accuracy (less than 1.2% of range). In case of the FDR, it was found that the improvement obtained was marginal and there were cases where no improvement was obtained. It was also seen that three pilot rockets may be required to obtain improvement in accuracy. Three pilot rockets however constitute a waste of rockets and reduced neutralization capability. The GPS system which is a registration system like the FDR will suffer from the same inaccuracies and limitations and as such is not suitable for improving the accuracy of Pinaka. In addition, major changes in rocket configuration has to be done before the GPS system becomes feasible. It is therefore felt that this project is no longer necessary or feasible as a method for increasing Pinaka accuracy. The Committee therefore proposed that Project may be short closed".

22. **The Committee note that though a number of reasons have been given by the DRDO for the closure of some of their projects. Yet before**

commencement of a project proper planning should have been done and all out efforts be made to ensure that no such issues arise which necessitate the closure of these projects. The Committee further note that one of the reasons given for closure of projects were mentioned as change in Qualitative Requirement(QR) at later stage. The Committee are of the view that there should have been foresight at the planning stage and also urge that the QRs should be finalised by involving all the stakeholders at the highest level so that there will be less necessity for changing the QRs by the users. While acknowledging the fact that technology is constantly upgrading and research has to be in line with upgradations, the Committee advise DRDO that its research activities has to be more pro-active, practical and comprehensive. Ad-hocism in commencement and closure of projects reflects pretense, which Committee condemn in all respect. The Committee desire that once these QRs are frozen, products should be developed accordingly and improvements if needed could be done after a prototype is made.

CHAPTER II

a) Observations/Recommendations which have been accepted by the Government

Recommendation (Para No. 4)

The Committee were concerned about the R&D work being taken in Ordnance Factories. In this regard, the Committee were informed that Ordnance Factory Board (OFB) is primarily a manufacturing organization engaged in manufacturing of defence products based on Transfer of Technology (ToT) from the Original Equipment Manufacturer(OEM) or DRDO. Expenditure on R&D is very minimal i.e. less than even 17 of Value of Issues (VOI) during the last five years. With regard to strategies/initiatives for R&D enhancement, the Committee were informed that in 2003, Ordnance Factory Board adopted a policy of in-house R&D resulting in the formation of 11 Ordnance Development Centres (ODCs) in diverse technical fields. OFB has decided to increasingly play the role of lead integrator of defence equipments. Accordingly, OFB has initiated actions to jointly work with major DPSUs such as BEL, MIDHANI, BDL etc. Reputed institutes like IITs at Kanpur, Mumbai and Chennai have also been roped in for R&D indigenization. Adequate fund is made available to Ordnance Factories to carry out development of arms and ammunitions with indigenous technology. Besides this, the Ministry has approved a number of capacity augmentation projects involving an investment of more than Rs. 4000 crore during the last 04 years in the Ordnance Factory Board. However, it is regretted that no substantial R&D work are being taken at Ordnance Factories. Unless strategies towards restructuring and in house R&D work are undertaken in Ordnance Factories it will not be possible for Ordnance Factories to position itself in the league of internationally reckoned companies to manufacture arms and ammunition. Therefore, the Committee wish that strategic efforts be made to kickstart and set rolling the R&D activities in Ordnance Factories. The initiatives taken in this regard be intimated to the Committee.

Reply of the Government

The following initiatives have been taken towards restructuring of R&D in Ordnance Factories Organization:

(i) Factories have been given target to increase the expenditure in R&D activities to the extent of 3% of their turnover by the year 2018-19 in a phased manner.

(ii) To avoid the delay in processing of R&D projects at OFB HQ, financial powers have been delegated at all levels.

(iii) Factories are being encouraged to associate themselves with reputed academic Institutes for research assistance. OFB is developing Electronic Fuze for artillery ammunition jointly with IIT Mumbai. OFB also plans to develop “smart ammunition” jointly with IIT Kanpur.

(iv) Core technologies have been identified for 12 Ordnance factories to put in focused effort to cope up with Technology denial regime; it also includes joint working on some of the large projects with DRDO from the inception stage and to render manufacturing assistance wherever required by DRDO.

Futuristic R&D projects being undertaken by OFB are as under:

- Futuristic Infantry Combat Vehicle(FICV)
- Commander TI sights for T-72 and T-90
- 155mm/52 Cal Future Artillery Gun
- 105mmLFG up-gradation with Laser Pointing and Positioning system
- 105mm HEER (BB) (High Explosive Extended Range)
- Electronic Fuze for Artillery 105/130/155mm
- 5.56x30mm joint venture Protective carbine(JVPC)
- Development of propellant and ammunition for 76/62 SRGM
- Indigenization of 6 types of critical items for supercharger of V46-6 Engine
- Development of Extreme Cold Weather Clothing System(ECWCS)

Recommendation (Para No. 5)

The Committee found that against a sanctioned strength of 1,25,126 personnel in technical category, there is an existing strength of 76,273 personnel in various Ordnance Factories. As far as non-technical staff is concerned, the sanctioned & existing strength are 23,095 and 17,645 respectively. The above figures show a huge gap in sanctioned and existing strength for both technical and non-technical personnel in Ordnance Factories. The existing strength of Group A officers is 1,671 as against the sanctioned strength of 2000. The Committee are deeply concerned about the fact that the shortage of personnel is ordnance factories is escalating over the years. In this regard, the Committee desire that essential measures should be taken to fill the sanctioned posts so that ordnance factories are able to deliver as per the requirements and inordinate delays in delivery is checked and progressive enhancement of infrastructural base takes place. The Committee should be intimated about the steps taken in this regard.

Reply of the Government

With regard to the shortfall in existing strength as against sanctioned strength of 93,918 personnel, it is intimated that the sanctioned strength of Ordnance Factories is intended towards catering to peak load requirements of Indian Armed Forces while existing strength is maintained for meeting the current load of the Armed Forces on annual basis. The flexibility is required to help Indian Ordnance Factories to augment the manpower at a very short notice in times of exigency.

Further to the above, the Industrial Cadre of the Ordnance Factories is a Four-Grade structure which is maintained in each trade of the Industrial Establishment. The promotions to the Industrial Employees are given based on the ratios based on sanctioned strength of each trade. As such the sanctioned strength is required for maintaining a healthy career progression of the work force while the existing strength is maintained to meet the workloads requirements.

Manpower is being sanctioned every year in respect of all categories of employees based on vacancies available in the recruitment grade and work load requirement and also keeping the plant modernization and outsourcing in view.

Recommendation (Para No.8)

The Committee note that at present 7809 number of scientists (including Service Officers and Work Officers) are working in Defence Research and Development Organisation (DRDO) against the sanctioned strength of 7932 (including 7255 Scientists, 623 Service Officers and 54 Work Officers) *(as per Govt. Orders in 2001).* The Committee also note that while the number of projects have grown multi-fold in terms of size and technological complexity keeping in view India's strategic and tactical defence requirements but there has been no increase of scientific manpower in DRDO since 2001. The Committee feel that scientific manpower in DRDO should commensurate with the R&D requirements and projects undertaken. As intimated by the Ministry that a cabinet note for augmentation of additional posts of scientists had already been forwarded for consideration of the Government. The Committee desire that the matter may be pursued vigorously at the highest level and they are apprised of the same within three months of presentation of this report.

Reply of the Government

As desired by Department of Expenditure, Ministry of Finance, a revised Cabinet Note for augmentation of Manpower of DRDO by 1316 posts (1260 Scientists and 56 Works Cadre Officers) has been forwarded for consideration of the Government. These 1316 posts are proposed to be filled in a phased manner in three recruitment years as under:-

Sl. No.	Year	Scientists	Works Cadre Officers	Total
(i)	First	420	16	436
(ii)	Second	420	20	440
(iii)	Third	420	20	440
	Total	**1260**	**56**	**1316**

The matter is being pursued vigorously at the highest level.

Recommendation (Para No.9)

The Committee also observe that on an average of more than 65 scientists have been resigning from DRDO since 2009. Till 1st October 2014, 23 scientists have left the organization. The reasons given for their exodus are indicated as their personal/domestic grounds. However, the Committee opine that conducive work environment, invigorated growth opportunities and suitable incentives can control such resignations. The Committee would like to be informed about the steps taken in this regard by the Ministry.

Reply of the Government

The details of various financial and growth related incentives given to attract and encourage the scientists in DRDO are as under:

(a) **Financial Incentives**

(i) **Additional Increments** Two additional increments are given to Scientists 'C', 'D', 'E' and 'F' in the Grade Pay of Rs. 6000, Rs. 7600, Rs. 8700 and Rs. 8900, respectively.

(ii) **Professional Update Allowance** Rs. 12500 p.a. to Scientists'B','C' and 'D'; Rs. 25000 p.a. to Scientists 'E' and 'F'; and Rs. 37500 p.a. to Scientist 'G' and above are granted as Professional Update Allowance.

(ii) **Variable Increments** Up to a maximum of six increments are granted to deserving Scientists at the time of promotion, based on the recommendations of the Assessment Committee.

(b) **Growth Related Incentives** For better promotional avenues of Scientists in DRDO, a merit based Flexible Complementing Scheme (FCS) is provided in the DRDS Rules, wherein promotions are based purely on merit without any linkage to availability of vacancies. Under the FCS, Scientists recruited at the level of Scientist 'B' in Pay Band – 3 with Grade Pay of Rs. 5400 can move upto the level of Scientist 'H' in HAG Scale (Rs. 67000 – 79000) and thereafter upto the level of Distinguished Scientist in HAG + Scale of Rs. 75500 – 80000 on personal upgradation basis.

Young Scientist are provided mentoring and guidance through constant interactive process for maintaining highest standard of research. Also best of infrastructure, state-of-the-art laboratories, equipment, test facilities, etc. are provided for better working environment and research standards.

(c) **Proposed Incentives** Efforts are on to implement Performance Related Incentive Scheme (PRIS) in the Organisation as per recommendation of 6th Central Pay Commission (CPC) which has not been agreed to by Ministry of Finance, despite the same being in operation in Department of Space and Department of Atomic Energy. Grant of PRIS to the Organisation will further rejuvenate the morale of DRDO Scientist/staff and encourage them to perform better.

Recommendation (Para No 10)

The Committee have also observed that there are many projects, undertaken in different DRDO labs, which are not attaining completion due to shortage of manpower. The Committee desire that all out efforts should be made by DRDO to ensure that projects undertaken by it are not delayed on account of shortage of manpower.

Reply of the Government

Defence Research and Development Organisation (DRDO) follows a dynamic system of manpower development policy wherein no laboratory/establishment is provided a permanent authorisation of posts. The deployment of Scientists and other manpower is decided on the basis of functional requirements, work load and other relevant considerations in each laboratory/establishment at a given point of time. Once a post falls vacant, it is taken back into the corporate pool and is released to laboratory again based on functional justifications. In this manner, availability of manpower is ensured in crucial projects.

However, it is mentioned that DRDO is indeed facing shortage of Scientists, for which it has taken up a Cabinet proposal for 1316 additional posts (1260 Scientists and 56 Works Cadre Officers), which is presently under consideration of the Government.

Recommendation (Para No 11)

The Committee are happy to note that the country's defence requirements in terms of indigenous systems are being taken care of by the Defence Research and Development Organisation (DRDO). The Committee see that although DRDO has given the country a vast range of products and systems, ranging from the strategic Agni class of missiles, a family of radars and sonars for virtually every platform/application, Electronic Warfare (EW) systems, Main Battle Tank (MBT), combat aircraft, etc.yet the country is still dependent on imports. Even after five decades of the establishment of DRDO, in 1958, having a vast network of 52 laboratories across the country, the Nation is still importing large chunk of its technological requirements in Defence Sector fully knowing that technologically advanced countries do not part their critical technologies with developing countries

and offer only 'Buy' category of systems to countries like India. Therefore, our labs have to develop each systems, sub-systems, component ab-initio including information infrastructural and testing facilities. For this, adequate budgetary support is required. The Committee desire that necessary reforms in this regard should be undertaken and a detailed concept paper be prepared to ensure that there is no dearth of funds. The Committee also desire that they may be apprised about the same.

Reply of the Government

Every year budget requirement is projected by DRDO based on the ongoing and futuristic projects. Approximately 42% of the allotted funds are utilized for strategic projects and 58% towards development of tactical and other systems which include R&D Activities, Salaries, Works & Maintenance, Miscellaneous, etc. About 80% of the total budget is utilised for completion of Mission Mode Projects with deliverables for Armed Forces. Short falls in allocation of budget for Department of Defence R&D was affecting Technology Development (TD), Science & Technology (S&T), Creation and maintenance of Infrastructure and Facilities (IF) and Product Support (PS) activities. Over the past many years, matter related to short falls in Defence R&D Budget were raised in the meetings of the Parliamentary Standing Committee on Defence. As a result, Standing Committee recommended increase in Defence R&D Budget which was increased substantially during 2014-15 particularly in "Capital Head". This increase will be utilised for completion of major flagship strategic programmes. This year Defence R&D Budget has been increased from 5.37% to 6.67% of the total Defence Budget.

DRDO has also evolved a Long Term Technology Perspective Plan (LTTPP) which highlights the emerging technologies in defence areas. The Plan caters for requirements of Services for next 15 years (XII to XIV Plans) and possible long term requirements beyond 15 years. The basis of Plan is threat perception and requirements of Armed Forces as articulated in Long Term Integrated Perspective Plan (LTIPP) of Services which clearly indicates the deliverables in XII, XIII and XIV Five Year Plans.

On the directives of Hon'ble Prime Minister, DRDO has recently established following seven **Young Scientist Centres** at various locations in the country on 21 Jan 2015:

(i) Centre for Guidance Systems of Rockets, Pune;
(ii) Centre for Soldier Assist System for Difficult Areas, Bengaluru;
(iii) Centre for Advanced Semiconductor Technology, Delhi;
(iv) Centre for Briefcase Sonar Technology, Kochi;
(v) Centre for Unmanned Small Airship Technology System, Agra;
(vi) Centre for Advanced Avionics Technology, Hyderabad;
(vii) Centre for Adaptive Sensing Technology, Bengaluru.

These Centers are headed by scientists under 35 years of age and these will function for accelerated R&D in respective areas.

Keeping all above in view adequate budgetary support is required for which DRDO will submit its requirements to the Govt. in the next financial year proposal.

Recommendation (Para No 12)

The Committee note that there are about 530 ongoing projects in different DRDO labs and out of it 136 in mission mode. Some of these include Agni IV, Agni V, Nirbhay cruise missile, K-15, Nag, Astra, AWACS, Arjun main battle tank, Tejas LCA etc. The Committee also note that out of 44 major ongoing projects (more than 100 crore), there have been cost revisions and time revision in case of 8 and 12 projects respectively. Besides, 10 projects are more than 5 years old i.e sanctioned before 2009. Eighteen major projects (more than 50 crore) sanctioned during 10th Five Year Plan (April 2002 to March 2007) but none has yet been completed. Moreover, two of them have been closed, five awaiting closure and one under evaluation. Out of 43 major projects (more than 50 crore) initiated during 11th Five Year Plan (2007-12) none has reached completion. The Committee are perturbed to observe that the projects being undertaken are not executed according to their schedule and inordinate delays in execution of almost all the projects is a common phenomena. While deploring this attitude, the Committee desire that some concrete steps should be taken to put in place a mechanism to oversee the project execution so that they are implemented in stipulated time-frame. Although, the Committee note that some measures have been taken to decimate delays such as creation of seven technology clusters and the concerned Director Generals of technology clusters have been delegated adequate financial and administrative powers to carry out research and development as per mandate of DRDO, monitoring of all Cabinet Committee on Security (CCS) projects by the Cabinet Secretariat through monthly report submitted before 10th of every month on status and progress of each project. The Committee note that despite such an elaborate mechanism in place, the projects are being delayed. The Committee are not happy with the situation. They opine that this mechanism is not being followed scrupulously. The Committee desire that more effective efforts are required to be made for timely completion of each project. The Committee also desire that efforts so made may be apprised to them.

Reply of the Government

Recommendations of the Parliamentary Standing Committee on Defence have been noted. The following corrective measures have been taken by DRDO to restrict future time over-runs in projects:-

(i) While undertaking new projects, pre-project activity including preliminary design will be given greater focus.
(ii) More stringent review mechanisms have been put in place and various high level Committees including Steering Committees, Advisory Committees and Monitoring Boards have been established.
(iii) Services and production partners during development process and reviews have been involved to know their views in advance including finalization of GSQRs.

After implementation of recommendations of Dr. Rama Rao Committee, authority have been delegated to Technology Clusters with responsibility and accountability.

Director Generals of all seven technology clusters have been instructed to complete all ongoing projects on-time. In case any problem comes during execution of project, it has to be sorted out at appropriate level. All DRDO laboratories have been advised to formulate projects with realistic date of completion and review projects strictly at every set milestones. Extension of project completion period will be given with proper justifications and those are beyond control of DRDO.

Individual/team/agency responsible for delay in completion of project will be called for explanation with DRDO Management Council (DMC), a apex body of DRDO and appropriate action would be initiated.

DRDO HQr has issued Procedure for Project Formulation and Management (PPFM) – 2014 as a guidelines Manual for reference to all DRDO laboratories. All laboratories have been instructed to follow the set guidelines to avoid any time over-runs in project.

Recommendation (Para No 14)

The Committee are happy to note that to counter the threat of conventional warfare and to equip the troops with equipment/systems which can detect, decontaminate and offer protection against NBC threats, DRDO is developing NBC defence technologies that are in regular use in the Services. Life Sciences laboratories have been involved in the development of NBC equipment. Over the last two decades, thirty-eight NBC systems/products have been developed by DRDO laboratories. These products essentially cover the areas like detection, individual and collective protection, decontamination and medical and first aid systems, which have already been delivered to the Services. Some of these developments include chemical agent detectors, NBC reconnaissance vehicle, water poison detection kit, residual vapour detection kit, three colour detector paper, NBC Filter, personal decontamination kit, decontamination solution (DS-2), portable decontamination apparatus, integrated field shelter, mobile decontamination system, NBC individual protective equipment (IPE), first aid kits, NBC protective items, NBC canister, neelkantha and auto injector, etc. While appreciating the efforts of DRDO, the Committee recommend that the Ministry of Defence and DRDO should be pro-active in foreseeing the future challenges of NBC threat and work towards decimating its menace.

Reply of the Government

Defence Research and Development Organisation (DRDO) has undertaken new initiatives to further augment the Nuclear, Biological and Chemical (NBC) Defence capabilities of the Armed Forces. A major programme on NBC Defence Technologies has been undertaken with a budget of Rs. 284.96 Cr. The programme includes 12 Mission Mode projects and 24 Science and Technology projects. The deliverables include chemical agent detectors, individual protective equipment,

shelters, decontaminants and medical management devices. Deliverables have undergone User Assisted Technical Trials (UATT) and are ready for User Trials.

Recommendation (Para No 15)

The Committee are happy to note that DRDO has instituted Grants-in-Aid schemes to nurture available research talents in universities, academia and other research centres, including industries in the country. The Committee commend this initiative as this will foster knowledge-based growth of defence-related discipline in the country, strengthen national resources of knowledge, know-how, experience, facilities and infrastructure and catalyze the much needed cross-fertilization of ideas and experiences between DRDO and outside experts in scientific and technical fields that contribute to defence technology. In this regard, DRDO has established seven centres of excellence at various institutions/universities in Bangalore, Chennai, Hyderabad, Coimbatore, Mumbai and Kolkata. The Committee recommend that such centres should be opened at more places across the country. The Ministry of Defence should take initiatives in this regard under intimation to this Committee.

Reply of the Government

Recommendations of the Parliamentary Standing Committee on Defence has been accepted. In addition to establishment of seven Centers of Excellence in various disciplines, DRDO has taken initiative to establish four more centers of advanced research in areas of interest to defence. These are:

(i) Bi-nodal Center of Propulsion Technologies (CoPT) at IIT, Bombay.
(ii) Jagadish Chandra Bose Center for Advanced Technology (JCBCAT) at Jadavpur University, Kolkata.
(iii) Joint Advanced Technology Center (JATC) at IIT, Delhi.
(iv) Center for Advanced Materials & Electromagnetics (CAMEL) at IIT, Jodhpur.

b) Observations/Recommendations which have been accepted by the Government and commented upon

Recommendation (Para No.1)

Indian Ordnance Factories were provided a fund of Rs. 3,666 crore during 11th Five Year Plan from 2007-12 for modernization against which an expenditure of Rs, 2,927 crore was incurred. Hence, Rs. 739 crore was left unutilized. The Committee observe that Ordnance Factory Board manages 41 manufacturing Units and 32 other establishments, nevertheless around 20% amount allocated for modernization remained unutilized during the 11th plan period. The under utilization of fund also indicate that Ordnance Factory Board has not been so forthcoming in modernizing Ordnance Factories. The issue of augmenting capacity for manufacturing has not been properly a ddressed which has resulted in delays of many projects like T-90 tanks, Pinaka Rocket system, etc. The Committee express their anguish over the under utilization of Nations funds. This shows sheer callousness on the part of the Ordnance Factory Board. The Committee are of the opinion that had there been less allocations, this amount could have utilized in some other head. The Committee opine that alongwith adequate budgeting, optimum utilisation should also be given due importance. The Committee also desire that funding and expenditure pattern should be promptly dealt with under intimation to this Committee.

Reply of the Government

Ordnance Factory Board was provided with Rs. 3666 Crore during the 11th plan period, out of which an expenditure of Rs. 2927 Crore was incurred. The under expenditure of Rs. 739 Crore occurred for the reasons as under:

a) BE projection is made one year before the year of expenditure, based on the committed liability and potential liability. However, many cases results in re-tendering due to certain reasons (as enumerated below) and in turn the actual expenditure could not be met to the extent of BE projection:

   (i) Most of the machines procured by OFB are special purpose machines, tooled up and normally not available off the shelf.
   (ii) Vendor base for the above kind of machines is limited.
   (iii) There are limited sources for ammunition and explosive manufacturing plants.
   (iv) Because of financial crisis, major suppliers in Europe failed to respond to tender enquiries resulting in re-tendering of cases and also failed to execute the supply timely.

b) The estimated cost at the time of demand preparation is based on the Budgetary Quotation obtained from the prospective suppliers. However, many a time the actual expenditure in procurement of plant &

machinery through competitive bidding is less than the budgetary quote.

Modernization drive has been speeded up and in the first two years of XIIth Plan (2012-13 & 2013-14), the funds have been utilized to the extent of 100% i.e. Rs. 1939.39 Crore have been spent against BE of Rs. 1933.69 Crores even though there was a severe fund crisis in the year 2012-13 due to which OFB had to prioritise its investment plan. OFB has envisaged an investment plan of Rs. 1660 Crore in the current financial year 2014-15.

Recommendation (Para No. 3)

While examining the subject, the Committee noted that there have been very long gestation periods in case of different projects. For example, the project for creation of capacity for manufacturing of MBT Arjun @ 30 numbers per annum was sanctioned in May 2002 and the project could be completed only in August, 2011. This resulted in a time overrun of ten years. Also, Ordnance Factory project, Nalanda was initiated during the 10th Plan and has been carried forward to the 12th Plan. Besides this, the project for creation of capacity for manufacturing of T-90 tanks @ 100 numbers per annum was sanctioned in December, 2003. Ordnance Factory Board started manufacturing 100 tanks per annum, inclusive of tanks manufactured from SKD (Semi-knocked down kits) from 2009-10. Besides these, many projects which started in 2010 such as creation of capacity for manufacturing of T-72 variants @ 50 numbers per annum, augmentation of capacity for manufacturing of armoured vehicles engines from 350 to 750 per annum, augmentation of capacity for manufacturing of spares required in overhauling of T-72 & T-90 tanks have not even attained 50% completion even after a lapse of 4-5 years. The Committee take serious note of the position with regard to long gestation of periods and delays in project executions of Ordnance Factories projects and desire that all-out efforts be made to streamline the project execution. Any kind of indecisiveness or callousness is not acceptable to the Committee. The Committee want this that matter should be looked into by a high powered fact finding Committee so that accountability of the all concerned be fixed. In this context the Committee are given to understand that certain Ordnance Factories are facing capacity constraints due to explosive safety limit restrictions on building used for ammunition production. They have been further informed that steps are being taken to augment capacity of certain Ordnance Factories. Besides this in the past also Ordnance Factory Board had problems in meeting the target of manufacturing the T-90 tanks, BMP-II and Pinaka Rocket due to various constraints such as delayed product support from the Original Equipment Manufacturer (OEM), discontinuity in production line due to non-availability of indents from Army and also certain issues involving modification of design. The Committee are not happy with such a sorry state of affairs prevalent in respect of project executions. They are of the opinion that these problems could have been envisaged at the planning stage itself. Hence the Committee want that adequate steps should be taken to adhere to the targets both in terms of quality and time under intimation to them.

Reply of the Government

The creation of infrastructure facilities for manufacture of MBT Arjun was completed by Feb, 2006 i.e. within the schedule time of 78 weeks. However, a minor civil work comprising only 2% of the project cost of construction of 2 nos of type V residential quarters, which formed a part of MBT Project, was delayed and accordingly only the financial closure was delayed.

The delay in T-90 project for creating a manufacturing capacity of 100 Nos per annum was due to non-availability of product support from Rosoboronexport, Russia and non-availability of ToT documents from OEM.

The likely completion status of the projects started in 2010 is as follows:

Name of the Project	Status of the Project	Delay
T-72 Variants @ 50 Nos. p.a.	Anticipated completion of the project – Mar, 2015	18 months
Augmenting the capacity of Armoured Vehicles Engines from 350 Nos. to 750 Nos. p.a.	Anticipated completion of the project – Dec, 2016.	38 months
Spares required in overhauling of T-72/T-90 Tanks	Anticipated completion of the project – Dec., 2015	26 months

The progress of all the above projects is regularly monitored in the concerned Ordnance Factory as well as at the OF Board level.

Ordnance Factory Board has been directed to take immediate measures to complete the projects at the earliest. Simultaneously Ordnance Factory Board has also been asked to take the feedback in the form of 'lessons learned' from the officials involved in project execution so that the reasons for delay are captured and reflected upon so as not to repeat them in future.

Recommendation (Para No. 6)

The Committee opine that besides timely production, it is also equally pertinent to have quality production. During the deliberations, it was revealed that earlier there were certain quality problems with the ordnance factory products. However, the representatives of Ministry of Defence assured that now they are taking a lot of initiatives in ensuring that everything is manufactured as per the process schedule. As regard the defects due to improper handling of ammunition and storage in ammunition depots, improper maintenance of weapon system, improper handling of ammunition and weapon during firing or design deficiency, the Committee opine that quality of products has to be ensured at all levels. Excellent quality is absolutely necessary in achieving indigenization and self-reliance in respect of different high-end technology systems and sub-systems. The OFB should take responsibility of training its end users (the Service personnel) in proper handling of ammunition and weapon. Inspite of these remedial measures, if the lacuna continue to exist, then accountability should be fixed and Committee be informed about the steps taken.

Reply of the Government

Factories have taken lot of initiatives to conform the manufacturing of products as per ToT/AHSP documents.

Regarding the defects due to improper handling and storage in ammunition depots, improper maintenance of weapon system, improper handling of Ammunition & Weapons during firing or design deficiency, the following comments are furnished:

(i) For ammunition items, Ammunition Maintenance Instruction (AMI) and Ammunition Maintenance Kit (AMK) are being issued by AHSP documents.

(ii) For training of users, it is proposed that user may depute group of persons to the relevant Ordnance factories for training & guidance on handling and storage in ammunition depots, maintenance of weapon system, handling of Ammunition & Weapons during firing.

(iii) DDP has issued instruction for audit of QC/QA practices in OFs by a team involving representatives from Users, Quality Assurance agencies, DRDO and production Agencies. It is proposed that for audit of storage, handling and maintenance at user end to be included in the scope of audit.

Process of defect investigation by a composite team of DGQA & Ordnance factory already exists. Remedial actions are taken based on the report. Accountability is fixed based on findings of the inquiry report. In a specific case of failure of PTA Lakshya Parachute, manufactured at Ordnance Parachute Factory Kanpur, concerned workmen, Staff and Officers even upto SAG level in the factory were issued advisory notes pending inquiry into the failure. The inquiry by a composite team of representatives from all stakeholders including the User is a still continuing and further necessary action shall be taken based on the inquiry report.

Recommendation (Para No. 7)

The Committee note that the Defence Research and Development Organization (DRDO) projected an amount of Rs. 18495.46 crore, however, it has been allocated an amount of Rs.15282.92 crore only thereby a shortfall of Rs. 3212.54 crore. The Committee also note that out of the total defence budget the share of DRDO was 6.98% in 2009-10, which reduced to 5.37% in 2013-14. However, this share has slightly improved to 6.67% in 2014-15. The share of defence research and development budget to GDP is also declining over the years. It has reduced to 0.09 per cent in 2013-14 from 0.13 per cent in 2009-10. The Committee also note that DRDO gives its budgetary projection, based on the ongoing projects/programmes and future requirements, but it has been allocated a meager amount and out of which nearly 80% is utilized for Mission Mode Projects with deliverables for Armed Forces. The Committee feel that shortfalls in budget affects the pace of technological and infrastructural development since ongoing development activities have to be re-prioritized. Now-a-days there is a need to lay emphasis on indigenization of defence products but it can only be achieved with

adequate budgetary support. The Committee desire that all possible measures should be taken to meet the budgetary requirement of DRDO. The Committee may be informed about the measures so taken.

Reply of the Government

Prior to 2014 – 15, Defence Research and Development Organisation (DRDO) was facing problem of funds crunch. Many on-going projects were reprioritised due to inadequacy of funds. During 2014 – 15, Government has increased Defence R&D Budget substantially, particularly in "Capital Head". DRDO has requested for increase in budget in "Revenue Head" also. At present, Defence R&D Budget is approximately 6.67% of the Defence Budget which is insufficient for proper technological development. Justice towards indigenization can be done only if the budget of Defence R&D is raised to at least 8 to 10% of the Defence Budget. DRDO has prepared a Long Term Technology Perspective Plan (LTTPP) that aligns with the Services Long Term Integrated Perspective Plan (LTIPP) to ensure strengthening and competitive growth in indigenous Defence technologies which is under implementation. Government is considering request of DRDO for giving preference to indigenous products in defence acquisition and create a category 'Make in India/Developed by DRDO.

Recommendation (Para No 13)

The Committee note that many projects including development of cargo ammunition, development of GPS Based System as an Alternative to Fire Direction Radar, development of 30 mm Fair Weather Towed AD Gun System, development of 30 mm Light Towed AD Gun System have been closed thus wasting a considerable amount of public money. The Committee desire that they be informed about the basis on which these were included and specific reasons which forced the Government to close these projects. In this connection, the Committee feel that before commencing a project and channelizing money towards it though calculation should be made for the project so that it may not be dropped before its completion and not even a single penny of the public is wasted in the name of country's defence.

Reply of the Government

Development of Cargo Ammunition

The project was undertaken in 1998 based on requirements from user. The objective was to develop cargo bomblets for 105 mm, 130 mm, 155 mm guns and 120 mm Mortar and 122 mm Remotely Delivered Munition System (RDMS). The project was to demonstrate assembly and trials in all calibers. Bomblets being the same for all the calibers and carrier systems was only different, it was decided to first prove the bomblets in 130 mm caliber and then evaluate it in all the carrier systems.

To prove the design aspects, expenditure was incurred by all the participating labs for procurement of shells, bomblets, fuzes, stabilizing systems, packing systems, propellant, initiation systems, conduct of various performance evaluation, qualification level tests, static and dynamic trials.

Under the project, achievement made are establishment of shell, packaging system, stabilizing mechanism, bomblet dispersion mechanism, ejection system, bomblet testing system, lethality for anti tank role and antipersonnel role. The integrated trails also resulted in 70-80% success in direct impact mode and additional 10-15% in Self Destruction Mode. Maximum of 90% success rate was achieved, whereas it was required to achieve 99% success rate to avoid any blind bomblets remaining in the field.

The complex system has been attempted with a good amount of success rate, the project closed with achievements listed above. The experience gained in progress of project has resulted in its utilization in Pinaka project to achieve major milestones at faster rare.

Development of 30 mm Fair Weather Towed AD Gun System

Indian Army has long standing requirement to replace vintage AD guns i.e. 40 mm L70 and 23 mm ZU gun in the service. After continuous interaction and long deliberations with the Users, the GSQR for AD gun system was finalized and GSQR 767 was received in Jan 2000. The main objective of the project was to develop 30 mm Air Defence Gun which would meet qualitative requirements as specified in GSQR 767 and replace in-service AD Gun systems.

In Jan 2001, during review of DRDO projects by VCOAS, it was opined that existing fleet of AD guns i.e.40mm L70 and 23mm ZU gun in the service are in good condition with residual life of 10-15 years. Further during 9^{th}& 10^{th} Plan, these guns are proposed to be upgraded and after upgradation the characteristics of these guns will be superior to that specified in GSQR 767. Further, ADG AD (Arty) Directorate in February 2001, indicated that the existing AD Guns in our service will be deinducted with effect from 2015 only as against 2006 planned earlier. It was also proposed to convene a meeting to finalize the GSQR as well as calibre of the future AD Gun.

In view of the above developments, it was not possible to effectively progress the Staff Project on 30mm Fair Weather Towed AD Gun. A change in QR at that stage was going result in major changes in the scope of work and hence the action for holding of PDR, manufacture of hardware, etc had not been progressed. Considering major policy shift by Users, Project Monitoring Committee on Armament and High Energy Materials proposed to close the project.

Development of 30mm Light Towed AD Gun System

Draft GSQR based on the General Staff Policy Statement (GSPS) No. 144 on Army Air Defence Equipment for development of Fair Weather Towed Air Defence (AD) Gun was received in Feb 1997. According to the GSPS No. 144, de-induction of 40mm L/70 and ZU-23 mm gun was planned with effect from 2005 and 2006, respectively. Therefore, it was stated that these guns are to be replaced with new Fair Weather Towed Gun System. Hence in anticipation of finalized GSQR, the

project for Development of 30 mm Light Towed AD Gun System was undertaken in August 1997.

Main reasons for short closure of the project 'Development of 30 mm Light Towed AD Gun system' were:

(i) Change in GSQR parameters (number of barrels, rate of fire, overall mass, power laying, etc.)
(ii) Allotted funds were not adequate for development of AD gun with servo drive and control system as per new QR.
(iii) PDC extension required due to delayed receipt of finalized GSQR.

As it was not possible to accommodate new QRs within the allotted project funds and time frame, decision was taken in the Corporate Review Meeting to close the project and submit statement of case of new project.

Development of GPS Based System as an Alternative to Fire Direction Radar

An R&D project was taken up for technology demonstration to develop a GPS based telemetry system for Pinaka rocket. This system is utilized for tracking a pilot shot to generate certain trajectory parameters. The trajectory data is then extrapolated to get the co-ordinates of the predicted point of impact. This information is then can be used to give correction to the fire units. This enables in achieving first salvo effectiveness by speedy and accurate engagement of targets. Use of such system can improve the accuracy, which would result in:

(i) Less ammunition required per engagements.
(ii) Reduced mission time and fast response to call for fire.
(iii) More missions per battlefield day.
(iv) Lower demand for and cost on logistic chain.

The following achievements were made:

(i) Development of GPS Sensor Module
(ii) Development of telemetry transmitter with its Antenna
(iii) Integration of GPS-Telemetry Modules as an Onboard Unit
(iv) Integration of Onboard Unit with Pinaka warhead
(v) Ten Units of GPS Receiver and Ten Units of Telemetry Transmitter were developed
(vi) Successful static trials of hardware were carried out

Project Monitoring Committee Meeting held on 24 Oct 2002, took the decision to close the project. Subsequently, Director ARDE constituted a Committee tor review the project progress and technical work done and suggest future plan of work. The committee noted that the primary object of this project was to achieve higher accuracy. Three routes were undertaken for accuracy improvement

(i) Fire Direction Radar (FDR)-For rocket registration
(ii) GPS- For rocket registration
(iii) AGAPS- Automatic Gun Alignment and Positioning System.

Of these, the first and third was tried out during the User Trial. It was found that the third route viz the AGAPS system gave the required accuracy (less than 1.2% of range). In case of the FDR, it was found that the improvement obtained was marginal and there were cases where no improvement was obtained. It was also seen that three pilot rockets may be required to obtain improvement in accuracy. Three pilot rockets however constitute a waste of rockets and reduced neutralization capability. The GPS system which is a registration system like the FDR will suffer from the same inaccuracies and limitations and as such is not suitable for improving the accuracy of Pinaka. In addition, major changes in rocket configuration has to be done before the GPS system becomes feasible. It is therefore felt that this project is no longer necessary or feasible as a method for increasing Pinaka accuracy. The Committee therefore proposed that Project may be short closed.

CHAPTER III

OBSERVATIONS/RECOMMENDATIONS WHICH THE COMMITTEE DO NOT DESIRED TO PURSUE IN VIEW OF THE REPLIES RECEIVED FROM THE GOVERNMENT

-Nil-

CHAPTER IV

OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH REPLIES OF GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE WHICH REQUIRE REITERATION AND COMMENTED UPON

Recommendation (Para No 2)

During the deliberations, it was revealed that due to non-availability of funds in 2013-14, expenditure was prioritized and restricted to Rs. 186 crore for augmentation of capacity for manufacturing of T-90 Tanks from 100 to 140 number per annum. The Committee are surprised at this meagre allocation for such an ambitious project. While seeking clarifications for such lesser allocation the Committee desire that enough allocation should be provided to augment the capacity of T90 tanks so that adequate supplies are made to Army within the stipulated time frame. Accordingly, this Committee be intimated about the initiatives taken in this regard.

Reply of the Government

The project for manufacturing capacity augmentation of T-90 Tanks from 100 to 140 nos. per annum was sanctioned in September, 2011 and there were delays in initial period of project execution, primarily in tendering of machines. Subsequently in the year 2013-14, due to budget constraint the expenditure was prioritised and the investment plan against the project was restricted to Rs. 186.00 Crore. In the meanwhile the project is under review in light of firm indent being available for only 236 T-90 tanks from the Army HQ. It is equivalent to a workload of only two and a half year approx. at HVF Avadi (existing capacity being 100 T-90 tanks per annum). Even this order was placed after a gap of eight years".

CHAPTER V

OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH GOVERNMENT HAVE FURNISHED INTERIM REPLIES

-Nil-

NEW DELHI;
10 December, 2015
19 Agrahayana, 1937 (Saka)

MAJ GEN B C KHANDURI, AVSM (RETD),
Chairperson,
Standing Committee on Defence

APPENDIX I

STANDING COMMITTEE ON DEFENCE

MINUTES OF THE SIXTH SITTING OF THE STANDING COMMITTEE ON DEFENCE (2015-16)

The Committee sat on Thursday, the 10th December, 2015 from 1000 hrs. to 1100 hrs. in Committee Room, `62', Parliament House, New Delhi.

PRESENT

Maj Gen B C Khanduri, AVSM (Retd) - Chairperson

LOK SABHA

2 Shri Shrirang Appa Barne
3 Shri Thupstan Chhewang
4 Col Sonaram Choudhary(Retd)
5 Shri Sher Singh Ghubaya
6 Shri Ramesh Jigajinagi
7 Km Shobha Karandlaje
8 Dr Mriganka Mahato
9 Shri CH Malla Reddy
10 Smt Mala Rajya Lakshmi Shah
11 Shri A P Jithender Reddy

RAJYA SABHA

12 Shri K R Arjunan
13 Shri Harivansh
14 Shri Hishey Lachungpa
15 Shri Tarun Vijay

SECRETARIAT

1. Smt. Kalpana Sharma - Joint Secretary
2. Shri T G Chandrasekhar - Director
3. Smt. J M Sinha - Additional Director
4. Shri Rahul Singh - Under Secretary

2. At the outset, the Chairperson welcomed the members to the sitting of the Committee and briefed about the reports.

3. The Committee then took up for consideration of the following draft reports:-

(i) Action Taken by the Government on observations/recommendations contained in the Fourth Report of Standing Committee on Defence (16th Lok Sabha) on 'Demands for Grants of Ministry of Defence for the year 2014-15 on Navy and Air Force (Demand Nos. 23 and 24)'; and

(ii) Action Taken by the Government on observations/recommendations contained in the Fifth Report of Standing Committee on Defence (16th Lok Sabha) on 'Demands for Grants of Ministry of Defence for the year 2014-15 on Ordnance Factories and Defence Research and Development Organisation (Demand Nos. 25 and 26)'

4. After deliberations, the Committee adopted the above Reports with some modifications.

5. The Committee, then, authorised the Chairperson to finalise the above draft Reports and present the same to the House on a date convenient to him during the ongoing Winter Session, 2015.

The Committee then adjourned

APPENDIX II

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT ON THE RECOMMENDATIONS/OBSERVATIONS CONTAINED IN THE FIFTH REPORT (FIFTEENTH LOK SABHA) ON `DEMANDS FOR GRANTS OF THE MINISTRY OF DEFENCE FOR THE YEAR 2014-15 ON ORDNANCE FACTORIES AND DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION(DEMAND NO. 25 & 26)'

1. Total number of recommendations **15**

2. Recommendations/Observations which have been accepted by the Government (please see Chapter II):

   Para Nos. 4,5,8,9,10,11,12,14,15

   Total : 09
   Percentage: 60%

3. Recommendations/Observations which have been accepted by the Government and commented upon (please see Chapter II):

   Para Nos. 1,3,6,7,13

   Total : 05
   Percentage: 33%

4. Recommendations/Observations which the Committee do not desire to pursue in view of the replies received from the Government (please see Chapter III):

   -Nil-

   Total : Nil
   Percentage: 0%

5. Recommendations/Observations in respect of which replies of Government have not been accepted by the Committee which require reiteration and commented upon (please see Chapter IV):

   Para Nos. 2

   Total : 01
   Percentage: 7%

6. Recommendations/Observations in respect of which Government have furnished interim replies (please see Chapter V):

   -Nil-

   Total : Nil
   Percentage: 0%