

**AVOIDABLE PROCUREMENT OF A MOBILE
NITROGEN GAS GENERATOR PLANT,
INFRACTUOUS PROCUREMENT OF
MATERIAL, DEVELOPMENT OF INTEGRATED
AEROSTAT SURVEILLANCE SYSTEM AND
IRREGULAR EXPENDITURE ON
CONSTRUCTION OF VEHICLE TESTING
GROUND**

[Action Taken by the Government on the Observations/Recommendations of the Committee contained in their One Hundred and Thirty-first Report (16th Lok Sabha)]

MINISTRY OF DEFENCE

**PUBLIC ACCOUNTS COMMITTEE
(2020-21)**

TWENTIETH REPORT

SEVENTEENTH LOK SABHA



**LOK SABHA SECRETARIAT
NEW DELHI**

PAC NO.2201

TWENTIETH REPORT

PUBLIC ACCOUNTS COMMITTEE

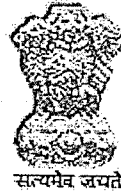
(2020-21)

SEVENTEENTH LOK SABHA

**AVOIDABLE PROCUREMENT OF A MOBILE
NITROGEN GAS GENERATOR PLANT,
INFRACTUOUS PROCUREMENT OF MATERIAL,
DEVELOPMENT OF INTEGRATED AEROSTAT
SURVEILLANCE SYSTEM AND IRREGULAR
EXPENDITURE ON CONSTRUCTION OF VEHICLE
TESTING GROUND**

[Action Taken by the Government on the Observations/ Recommendations of the Committee contained in their One Hundred and Thirty-first Report (16th Lok Sabha)]

MINISTRY OF DEFENCE



Presented to Lok Sabha on: 19-09-2020

Laid in Rajya Sabha on: 19-09-2020

**LOK SABHA SECRETARIAT
NEW DELHI**

September, 2020/

Bhadrapada, 1942 (Saka)

CONTENTS

	PAGE
COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2020-21)	(iii)
INTRODUCTION	(iv)
CHAPTER I Report	1
CHAPTER II Observations/Recommendations which have been accepted by the Government	19
CHAPTER III Observations/Recommendations which the Committee do not desire to pursue in view of the replies received from Government	27
CHAPTER IV Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee and which require reiteration	32
CHAPTER V Observations/Recommendations in respect of which Government have furnished interim replies/no replies	47
APPENDICES	
I Minutes of the 4 th sitting of Public Accounts Committee (2020-21) held on 28 th August, 2020	48
II Analysis of the Action Taken by the Government on the Observations/Recommendations of the Public Accounts Committee contained in their One Hundred and Thirty-first Report (Sixteenth Lok Sabha)	51

COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE
(2020-21)

Shri Adhir Ranjan Chowdhury - Chairperson

MEMBERS

LOK SABHA

2. Shri T. R. Baalu
3. Shri Subhash Chandra Baheria
4. Shri Sudheer Gupta
5. Smt. Darshana Vikram Jardosh
6. Shri Bhartruhari Mahtab
7. Shri Ajay (Teni) Misra
8. Shri Jagdambika Pal
9. Shri Vishnu Dayal Ram
10. Shri Rahul Ramesh Shewale
11. Shri Rajiv Ranjan Singh alias Lalan Singh
12. Dr. Satya Pal Singh
13. Shri Jayant Sinha
14. Shri Balashowry Vallabhaneni
15. Shri Ram Kripal Yadav

RAJYA SABHA

16. Shri Rajeev Chandrasekhar
17. Shri Naresh Gujral
18. Shri C. M. Ramesh
19. Shri Sukhendu Sekhar Ray
20. Shri Bhupender Yadav
21. Vacant
22. Vacant

SECRETARIAT

1. Shri T. G. Chandrasekhar - Joint Secretary
2. Shri. M.L.K. Raja - Director
3. Shri Paolienlal Haokip - Additional Director
4. Shri Pankaj Kumar Sharma - Committee Officer

INTRODUCTION

I, the Chairperson, Public Accounts Committee (2020-21), having been authorised by the Committee, do present this Twentieth Report (Seventeenth Lok Sabha) on Action Taken by the Government on the Observations/Recommendations of the Committee contained in their One Hundred and Thirty-first Report (Sixteenth Lok Sabha) on 'Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant; Infructuous Procurement of Material; Development of Integrated Aerostat Surveillance System; and Irregular Expenditure on Construction of Vehicle Testing Ground' relating to the Ministry of Defence.

2. The One Hundred and Thirty-first Report was presented to Lok Sabha/laid on the Table of Rajya Sabha on 19 December, 2018. Replies of the Government to the Observations/ Recommendations contained in the Report were received on 14 February, 2020. The Committee considered the draft Report on the subject and thereafter adopted the Report at their sitting held on 28 August, 2020. Minutes of the sittings form appendices to the Report.

3. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in bold in the body of the Report.

4. The Committee place on record their appreciation of the assistance rendered to them in the matter by the Committee Secretariat and the office of the Comptroller and Auditor General of India.

5. An analysis of the Action Taken by the Government on the Observations/Recommendations contained in the One Hundred and Thirty-first Report (Sixteenth Lok Sabha) is given at Appendix-II.

NEW DELHI;
17 September, 2020
26 Bhadrapada, 1942 (Saka)

Adhir Ranjan Chowdhury
Chairperson
Public Accounts Committee

CHAPTER – I
REPORT

This Report of the Public Accounts Committee deals with Action Taken by the Government on the Observations/Recommendations of the Committee contained in their One Hundred and Thirty-first Report (Sixteenth Lok Sabha) on “Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant, Infructuous Procurement of Material, Development of Integrated Aerostat Surveillance System and Irregular Expenditure on Construction of Vehicle Testing Ground” based on the C&AG Report Nos. 15 of 2017 and 19 of 2016, respectively, relating to the Ministry of Defence.

2. The One Hundred and Thirty-first Report (Sixteenth Lok Sabha), which was presented to Lok Sabha/laid in Rajya Sabha on 19th December, 2018, contained 14 Observations/Recommendations, 7 Observations/Recommendations in Part A and 7 Observations/Recommendations in Part B. Action Taken Notes in respect of all the Observations/Recommendations have been received from the Ministry of Defence and these have been categorized as under:

- (i) Observations/Recommendations that have been accepted by the Government:

Paragraph No. 1, 2, 3, 5 & 6 of Part ‘A’

Total: 05
Chapter-II

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

Paragraph No. 7 of Part ‘A’ and Paragraph No. 6 & 7 of Part ‘B’

Total: 03
Chapter-III

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

Paragraph No. 4 of Part ‘A’ and Paragraph Nos. 1, 2, 3, 4 & 5 of Part ‘B’

Total: 06
Chapter-IV

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

NIL

Total: 00
Chapter- V

3. The Action Taken Notes furnished by the Ministry of Defence on the Observations/Recommendations of the Committee contained in their One Hundred Thirty First Report (Sixteenth Lok Sabha) have been reproduced in the relevant chapters of this Report. In the succeeding paragraphs, the Committee have dealt with the Action Taken by the Government on some of their Observations/Recommendations which either need reiteration or merit comments.

A. Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant

(Observation/Recommendation No. 4 of Part A)

4. Consequent to enquiring this subject, the Committee in general infer the need to re-look in to the functioning of DRDO and its associate laboratories as they are of the view that under confidentiality or secrecy, development of sensitive technologies has been a very time consuming affair. They are of the view that what DRDO needs is operational freedom to function more effectively and deliver world class products on time. Also, the Committee are of the specific view that synchronization is not effective between the DRDO and the armed forces as they feel coordination among the agencies has affected the systematic development of military hardware. The Committee desire the administrative Ministry i.e. the Ministry of Defence to play a proactive role in better synchronisation and coordination among the agencies as both are mutually interdependent on each other and their association has direct bearing on the overall security and preparedness of the Country. The Ministry may provide the Committee steps/measures proposed to be taken in this regard.

5. The Ministry of Defence in their Action Taken Note have submitted as follows:

"DRDO's Mandate is to develop state of the art technology for the requirements of user/Army. However the whole cycle for conceptualization, development, lab scale experimentation, field level evaluation, demonstration to the user of sensitive technology for usage in exotic /hazardous user environment pose major technology challenges for DRDO. However this whole cycle require good amount of time to bring the hardware to maturity level for induction.

In addition to the above, DRDO has evolved & complying to a policy for pursuation & execution of various projects depending upon the product's technological level/maturity in terms of S&T, TD & MM, as per the document 'Procedures for Project Formulation and Management - PPFM-2016'. The projects are being taken after due review at various levels [Lab, Cluster & DRDO HQs.] with clear definition of its scope & objectives. Further on the User's interactions, various proactive measures have been taken by DRDO for close association with Army.

In order to ensure better coordination between DRDO and Army there are various review mechanism in place like Quarterly Interaction Meeting (QIM) and Vice Chief Review of projects Bi-annually. Apart from this, during review of each staff project there is a presence of User

representative in each project .

An exclusive Directorate [DISB] at DRDO HQrs. is nodal agency for coordination of all the DRDO activities with the Armed forces. Army Officers and Personals were posted at various Labs to support the R&D activities. Of late, specific deputation of Army Officers have been made to DRDO Labs as part of PMG for major projects. Recently, an recruitment call has been made to permanently position the Army Officers at DRDO as Scientists. In addition to the above, Scientists at various levels were attached to the different Army Regiments for two weeks attachment training programme in their area of research & developmental activities. All the above initiatives would help for better synchronisation and coordination for development of state of the art Defence products."

6. The Committee, had, in the course of examining various issues raised by Audit in its report *inter-alia* expressed the need for undertaking an exercise towards revamping DRDO, so as to boost its capacity and capability for Research and Development of state of the Art Technology. The Committee have noted that despite having a vast set up of laboratories, Ordnance Factories etc. DRDO has not been totally effective in meeting the requirements of our Defence forces. Consequently, the Forces continue to rely on imports not only for products of advanced technology, but also for certain basic technology/products. The Committee had in this regard, noted that for harnessing the full potential, DRDO needs to be given operational freedom so as to enable the organization in developing advanced cutting edge technology.

The Committee, accordingly, also recommended that the Ministry review the functioning of DRDO, with a view to developing DRDO as a world class organization which not only fulfills the needs of the Defence Forces of the country effectively but also taps the export market. To this end, the Committee had desired that each laboratory of DRDO should be developed as a centre of excellence. For the purpose a blue print needs to be prepared, with a clearly defined road map. Further, as expressed earlier, there is a need to give functional and financial autonomy to DRDO to meet its objectives. The Committee, therefore recommend that apart from taking measures towards ensuring that DRDO effectively caters to the needs of the Defence Forces of the Country, the

mandate of DRDO should be enlarged so as to enable the organization in playing a leading role in developing the Country as a producer of world class products with the latest cutting edge technology.

B. Development of an Integrated Aerostat Surveillance System

(Observation/Recommendation No. 1 of Part B)

7. In their examination of Para 6.1 on "Development of an Integrated Aerostat Surveillance System" based on the C&AG's Report No. 15 of 2017, the Committee observed that the very purpose of import of a balloon made from laminated fabric was to attain the objective of a medium sized aerostat without the constraints of endurance and shelf life as experienced using a polyurethane (PU) coated fabric aerostat. However, the balloon imported by the Aerial Delivery Research and Development Establishment (ADRDE), Agra for research purposes militates against the project's objective as consequently neither the aerostat was deployed nor Communication Intelligence (COMINT) payload was tested for the duration desired by the Army. Also, the claim about usage of the imported balloon with laminated fabric as a spare to cater for the unforeseen circumstances is incomprehensible to the Committee as the intended objective has not been achieved even after incurring a total expenditure of 49.50 crore, out of which an amount of 6.20 crore pertained to importing of laminated fabric balloon, which remained idle eventually.

8. The Ministry of Defence in their Action Taken Note have submitted as follows:

"The core objective of project Nakshatra was to Design and Develop an Integrated Aerostat Surveillance System-Medium Size with deliverable 'One set of Integrated Aerostat Surveillance Medium Size System'. The system comprises of indigenous Laminated fabric balloon, COMINT payload, Winch and Mooring System, Active Pressure Control Health Monitoring System, Power Management System, Ground Control System, etc.

The statement of case (SOC) of the project proposal highlighted 'Laminated Fabric' Development as 'High Risk Area'. In order to mitigate the risk, in case of unavailability of laminated fabric it was planned to import the laminated fabric. In the meantime, the balloon was planned to be developed using PU coated nylon fabric and COMINT payload was to be integrated and demonstrated. Further, it was envisaged to realize total 03 nos. of balloons with 01 no. to be kept as spare.

The efforts were made to develop indigenous laminated fabric till mid 2013. In spite of the best efforts put in by the lab, the indigenous laminated fabric development did not fructify due to technological complexity. In order to continue the project activities it was decided to use the improved PU coated nylon fabric which was concurrently developed by the lab (having 30%

improved fabric life) and import one laminated fabric balloon. To this effect, a cost enhancement was sanctioned vide letter no. DARO/03/342/P/1/2710/D(R&D) dated 29/10/2013 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No. 958/MoD/Fin/(R&D) dated 24/10/2013.

The fabrication of balloon with indigenous improved PU coated fabric was initiated in June 2013 and was realized in Feb 2015. The procurement of laminated fabric balloon through import route was initiated in Dec. 2013 and was delivered in Aug. 2015.

After procurement, the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days. All the functional tests were carried out and the balloon was made ready for flight. The interfaces of all the subsystems of integrated aerostat system "Nakshatra" were made compatible to both PU coated and laminated fabric balloon. In addition, DRDO scientists learnt various technological aspects of laminated fabric balloon with respect to configuration, fabrication and sealing technologies involved in laminated fabric, panel and joint analysis, pressure drop study, inflation and deflation techniques, integration of interfaces, static balancing of different loads in inflated conditions, etc. This facilitated the development of indigenous laminated fabric and sealing technologies which have been subsequently matured and available for future use. This proved to be an intangible benefit from the imported balloon for maturing the indigenous laminated fabric balloon.

The integration efforts of Aerostat sub-systems on PU coated fabric balloon was started in Feb. 2015 and the maiden flight of Nakshatra was conducted on 21 Oct. 2015.

The initial flight trial and test results were very encouraging with indigenous balloon in terms of endurance requirement of 14 days meeting the QR provided by SI Dte, Army Hqrs. Based on the encouraging results, the trials were continued to mature all the indigenous technologies till April 2016 at Agra with user involvement.

During the 10th Executive Board meeting dated 27 April 2016, in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at user site as per scope of the project. Accordingly, user associated technical trials were conducted at user designated site at Tibri, Punjab. The user endorsed that the user associated technical trials were successful and suggested for few improvements/modifications in terms of payload configuration and tether vide MoM 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016.

10th EB also directed to initiate a new project under product support (PS) category for 02 years duration, beyond PDC of current project, with 2-3 months of extensive user participation. Considering the above directive, imported laminated fabric balloon was kept as reserve to meet this ensuing requirement. Subsequently, ADRDE pursued user for obtaining QR for taking up new project under PS. However, the user now envisage that the operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017. The user has offered QR for comments vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 1 Mar. 2018 for medium sized Aerostat and clarifications have been sought through multiple communications from ADRDE to the user. No firm QR is received from user till date.

In the meantime, other requirements emerged from DRDO sister establishments, CABS, Bengaluru and IRDE, Dehradun to test and evaluate set of sensors and Long Range Electro-Optic (LREO) device, respectively during Sept. 2018. In order to meet these requirements, the Nakshatra Aerostat system along with imported balloon was deployed as per test requirements.

Therefore, the laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by our scientists facilitating indigenous development of laminated fabric balloon."

Vetting Comments

(i) "The core objective of the project 'Nakshatra' was to design and develop an Integrated Aerostat Surveillance system using laminated fabric balloon. However, decision of DRDO to use balloon with PU coated nylon fabric instead of imported balloon with laminated fabric militates against the project objectives. Further, the decision to close the project in June 2016 when user acceptance to the User Associated Technical Trials was yet to be received was not correct as users suggested improvements/ modifications in terms of payload configuration in August 2016 i.e. after closure of the project. Further Executive Board (EB) before closure of the project (April 2016) deciding to initiate new project using laminated fabric under product support involving extensive user participation showed that project was closed without meeting the project objective."

Department's Reply to Auditing Vetting Comments:

The core objective of the project 'Nakshatra' was to design and develop an Integrated Aerostat Surveillance system- Medium Size. Design and development of the surveillance system was started with the development of

laminated fabric balloon (which was one of critical technologies (High risk Area) which was highlighted in the Statement of Case, but it could not fructify due to technological complexity. In order to continue the project activities it was decided to use the improved PU coated nylon fabric which was concurrently developed by the lab (having 30% improved fabric life) and import one laminated fabric balloon(as risk mitigation strategy. Technology Demonstration (TD) projects are normally initiated by DRDO as feeder technologies for future or imminent MM projects. These are funded and monitored by DRDO with little or limited User inputs. The purpose is to develop, test and demonstrate a particular technology. Project objectives of this TD Project were met with indigenously developed improved PU coated balloon. Thus during the 10th Executive Board meeting daled 27 April 2016 in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at user site as per scope of the project and the project was closed in consultation with the user after successful demonstration at user site.

Accordingly, User Associated Technical Trials were conducted at user designated site at Tibri, Punjab. The user endorsed that the user associated technical trials were successful and suggested for few improvements/modifications in terms of payload configuration and tether vide MoVI 55340/ABC(Nakshatra) SI-11 dated 31 Aug. 2016. 10th EB also directed to initiate a new project under product support (PS) category for 02 years duration, beyond PDC of current project, with 2-3 months of extensive user participation, as User requested to provide product support

Vetting Comment

(ii) "The ministry claimed that the Nakshatra Aerostat system along with imported balloon was deployed as per test requirement and attached Annexure - land Annexure - II as supporting papers. On examination, it has been noticed that Annexure - II is the project proposal and Annexure - I is the sanction letter of Project titled "Design & Development of Integrated Aerostat Surveillance System - Medium Size (NAKSHATRA)".

Department's Reply to Audit Vetting Comments

Nakshatra Aerostat system along with imported balloon was deployed as per test requirement and attached as Annexure A & B, which are the test reports submitted by DRDO labs (IRDE & CABS respectively).

Vetting Comment

(iii)"Ministry has not provided any evidence to support the claim that the tests were carried out successfully".

Department's Reply to Audit Vetting Comments

The test reports submitted by DRDO labs (IRDE & CABS respectively) are attached as Annexure A & B which are testimony that the tests were carried out satisfactory". The first phase trials with laminated fabric balloon of approx 60 days for electro optic payload and sensors/payloads from CABS have been completed in May' 2019 Another phase was planned in March-April'2020 Tiberi, Punjab which is kept on hold due to Corona pandemic.

Vetting Comment

(iv)"The ministry's claim does not seem to be factually correct since ADRDE stated (July 2018) that it was in dialogue with Navy and BSF for demonstration & deployment of LREO payload on Aerostat system. Further, ADRDE stated that it was in process of developing electrical & mechanical interfaces for Aerostat platforms. However, IRDE stated (August 2018) that Platform integration & evaluation/trials was out of scope of the MM project and the development of Electro-Optical Payloads for Aerostat 'Nakshatra' was not linked with milestone of ADRDE project for Nakshatra".

Department's Reply to Audit Vetting Comments

Existing LREO payload from IRDE was chosen for conducting the trial (May 2019) on Nakshatra aerostat platform for exploiting its utility after the closure of Nakshatra project. Also, ADRDE was in dialogue with Indian Navy and BSF (July 2018) for demonstration and deployment of Electro Optic (EO) payloads on different types of aerostat platforms including futuristic system like Large size Aerostat. Although, platform integration & evaluation trials was out of scope of the MM project, as stated by IRDE (Aug 2018), ADRDE had planned to use LREO payload on available Nakshatra platform for installation and trials as requested by IRDE (July 2018), and with CABS payloads, flown with the imported laminated fabric balloon. The first phase of these trials was completed in May 2019. The second phase of these trials were planned at Tibri, Punjab in March-April'2020. However, the same could not be done due to present pandemic situation. The second phase trials would commence as soon as the pandemic situation improves."

(Observation/Recommendation No. 2 of Part B)

9. The Committee note that the technical specification of project 'Nakshatra' specified the use of laminated fabric for aerostat to sustain a working life of 5 years and for continuous operability for 14 days. However, they are dismayed to note that PU fabric coated balloon was used for trials which was of a lower quality than imported balloon made up laminated fabric. What can be more disconcerting for the Committee than the fact that imported balloon; though of superior quality, was never put to any field trial and was kept as risk mitigation strategy.

[Para No. 2 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

10. The Ministry of Defence in their Action Taken Note have submitted as follows:

"As noted by the PAC, the technical specification of project Nakshatra specified the use of laminated fabric to sustain the working life of 05 years and continuous operability of 14 days. Also, it is agreed that PU

coated fabric balloon was used during project as observed by the committee.

However, it is submitted that the indigenous improved PU coated fabric met the project objectives viz., endurance of 14 days comparable with the imported balloon. With respect to working life of 05 years achievable with imported balloon, the same can be met with 02 nos. of improved PU coated fabric balloons.

The performance of improved PU coated fabric balloon was not known a priori. But, during trials, improved PU coated balloon met the endurance requirement of 14 days and performed consistently. Hence, it was decided to continue its usage to explore its performance to full potential and complete the project. Therefore, the imported laminated fabric balloon was not put for field trials and was kept as standby and also for any future application.

However, after procurement, the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days. All the functional tests were carried out and the balloon was made ready for flight.

Later on, requirements emerged from DRDO sister establishments, CABS and IRDE, to test and evaluate set of sensors and Long Range Electro-Optic (LREO) device, respectively. In order to meet these

requirements, the Nakshatra Aerostat system along with imported balloon was deployed as per test requirements.

Hence it is submitted that the imported balloon was subjected to trials and usage within and beyond project PDC of June 2016."

Vetting Comments of Audit

"The ministry stating that imported balloon was subjected to trials within PDC was not correct as field trials using imported laminated fabric balloon was not held within the PDC of the project. The Ministry itself admitted that the fabric was kept as standby for any future application. Thus, the import of laminated fabric balloon did not serve the desired objective defined in the project i.e. to sustain the working life of 05 years and continuous operability of 14 days within the PDC i.e. 30 June 2016. Moreover, later in August 2016, user suggested some Improvement in the product after closure of the project".

This has been vetted vide DGADS UO NO. 438IDP-4912014-151(33)12014-15 dated 09 Jun 2020.

Response of the Ministry to the Audit Vetting Comments

"It submitted again, that after procurement. the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days on ground. Functional tests were carried out within PDC. It is agreed as stated by the committee that the imported laminated balloon was not utilised for field trials within project PDC. The performance of improved PU coated fabric balloon was not known a priori. But, during trials, improved PU coated balloon met the endurance requirement of 14 days and performed consistently. Hence, it was decided to continue its usage to explore its performance to full potential and complete the project. Therefore, the imported laminated fabric balloon was not put for field trials and was kept as standby and also for any future application. It is also submitted that the indigenous improved PU coated fabric met the project objectives viz., endurance of 14 days comparable with the imported balloon. As far as working life of 05 years achievable with imported balloon is concerned, the same can be met with 02 nos. of improved PU coated fabric balloons. Project objectives of this TD Project were met with indigenously developed improved PU coated balloon. The user endorsed that the User Associated Technical Trials were successful. Thus during the 10th Executive Board meeting dated 27 April 2016 in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at user site as per scope of the TD project and the project was closed in consultation with the user after successful demonstration at user site."

(Observation/Recommendation No. 3 of Part B)

11. The Committee do not concur with the assertion of either the Ministry or the DRDO that the Project met its set objectives and hence the use of laminated fabric balloon was not necessitated. The Committee are confounded at the fact that as to why, in the first instance, the balloon was imported if the purpose could have been achieved with indigenous product. It clearly depicts the lack of foresight and planning on the part of DRDO as at no stage of the examination, the Committee could find DRDO coming up with the alternative use of the imported balloon in case the domestic product proves to be successful.

[Para No. 3 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

12. The Ministry of Defence in their Action Taken Note have submitted as follows:
 "It is submitted that the indigenous improved PU coated fabric met the project objectives and the user endorsed vide Users MoM 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016 that the tests were successful, suggesting a few changes to get optimal results from the system.

With respect to alternative use of imported balloon, the same was discussed during 10th EB meeting held on April 2016 and it was suggested that the laminated fabric balloon could be utilised for the product support project beyond PDC of Nakshatra project.

However, the QR pertaining to the Product Support Project was under discussion with the user over a protracted period of time extending till Feb. 2019. The reply from the user is still awaited.

In the meantime, the requirements from the sister DRDO lab emerged for alternative usage to test and evaluate sensors during Sept. 2018. In order to meet these requirements, the Nakshatra Aerostat system along with imported balloon was deployed in the field, demonstrating and meeting the requirements for CABS and IRDE."

Vetting Comments of Audit

"The ministry reply indicated that usage of imported balloon was discussed in EB meeting (April 2016), which was held near the fag end of the closure of the main project i.e. June 2016. It was suggested to use the same for product support beyond PDC of Nakshatra project. Since, the QR pertaining to Product Support Project was yet to be finalized, it indicates that till date, DRDO is yet to decide on the alternative use of the imported balloon. Moreover, it appears to be an afterthought rather than a genuine need based usage of the imported fabric. "

Response of the Ministry to the Audit Vetting Comments

"It is submitted that the indigenous improved PU coated fabric met the project objectives and the user endorsed vide Users MoM 55340/ABC(Nakshatra) SI-11 dated 31 Aug. 2016 that the tests were successful, suggesting a few changes to get optimal results from the system. With respect to alternative use of imported balloon, the same was discussed during 10th EB meeting held on April 2016 and it was suggested that the laminated fabric balloon could be utilised for the product support project beyond PDC of Nakshatra project. However, the QR pertaining to the Product Support Project was under

discussion with the user over a protracted period of time extending till Feb. 2019. The reply from the user is still awaited. In the meantime, the requirements emerged for alternative usage of NAKSHATRA to test and evaluate sensors/payloads. The first phase trials of approx 60 days was completed in May' 2019. Another phase was planned in March/April'2020 at Tiberi, Punjab which is on hold due to Corona pandemic. "

(Observation/Recommendation Para No. 4 of Part B)

13. Here, the Committee would also like to highlight the fact that the Army also expressed reservations about the effectiveness of the balloon during the User Assisted Technical Trials (UATT). The Committee has every reason to believe that DRDO was more interested in developing/importing a foreign made balloon rather than ensuring that the end-user is fully satisfied with the product delivery. Non-extending the trials further on the ground that expenditure was not available for the same, is evidently an amiss on the part of the DRDO. Instead they came out with alternative suggestions of seeking queries from the Army after giving them for 2 years user trials across the country. The Committee also note with concern that since the completion of project, the Army has still not finalized the qualitative requirements (QR) for the aerostat project. The Committee, in this regard, recommend that an internal inquiry be set by DRDO to find out the reasons for these lapses and the avoidable expenditure which proved to be infructuous.

14. The Ministry of Defence in their Action Taken Note have submitted as follows:

"During 10th EB meeting held during April 2016, including Users (SI Directorate), it was decided to close the Nakshatra project within PDC i.e. 30 June 2016, and a new project under product support category shall be taken up.

After project closure, in a meeting held at Army Hqrs in Aug. 2016 between the scientists from ADRDE, Agra, DLRL, Hyderabad and the Users (SI Directorate), DDGSI (WZ) informed the forum that the User Associated Technical Trials (UATT) of the project Nakshatra held at Tibri Cantt was successful and suggested a few changes pertaining to COMINT payloads and Tether to get optimal results from the system. It

is reiterated that the user was satisfied with the UATT vide Para 4 of MoM dated Ref 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016.

Further during this meeting, it was collectively decided to launch a comprehensive Product Support Project for a period of 2 years in alignment with the decision taken during the 10th EB meeting. DRDO communicated to users multiple times to provide the QR for taking up Product Support Category Project. However, as observed by PAC, the Army has still not finalised the QR for the medium size Aerostat. In the meantime, the user has projected a requirement of Tactical (small size) Aerostat, stating that operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017.

The request for carrying out the User Associated Technical Trials (UATT) to be conducted for a period of 03 months was projected during Oct. 2016 after the project closure in June 2016 by the user. This request is in contradiction to decision taken during 10th EB and also during meeting held at Army Hqrs during Aug. 2016. Also, it is pertinent to mention here that without a project in place, it is difficult to carry out expenditure towards the trials, product support, etc. for a long duration of 3 months and beyond. The same was communicated to the Users.

It is agreed as stated by the committee that the imported laminated balloon was not utilised for trials within project PDC. However the project goals were met using indigenously developed improved PU coated fabric. The imported laminated fabric balloon was subsequently deployed and utilised for other DRDO projects as stated earlier.

The laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by our scientists facilitating subsequent indigenous development of laminated fabric balloon. Hence it is requested not to consider the expenditure of Rs.6.2 Cr. as infructuous."

Vetting Comments of Audit

"It appears that the decision to close the project within PDC was taken in a hurry since the user i.e. Army as well as DRDO had not declared User Associated Technical Trials successful within PDC/closure of the project in June 2016. The user (SI-11) had clearly stated in August 20'17 to the lab (ADR&DE) that the efficacy of COMINT payload mounted on the aerostat could not be ascertained during the User Associated Technical Trials and a joint trial for two to three months was essential before taking up a case for extended product support for three years. Further, DRDO was silent on PAC direction to

conduct an internal inquiry by DRDO to find out the reasons for the lapses and the avoidable expenditure which proved to be Infructuous.

This has been vetted vide DGADS UO NO. 438IOP-4912014-151(33)12014-15 dated 09 Jun 2020. "

Response of the Ministry to the Audit Vetting Comments

"During 10th EB meeting held during April 20'16, including Users (SI Directorate), it was decided to close the Nakshatra project within PDC i.e.30 June 2016, and a new project under product support category shall be taken up. The request by Users in Oct'2016, for carrying out the User Associated Technical Trials (UATT)for a period of 03 months before taking up

a case for extended product support was out of scope of the current TD project and is in contradiction to decision taken during 10th EB in which Users was also part of the decision and also during meeting held at Army Hqrs during Aug'2016. It is pertinent to mention here that without a project in place, it is difficult to carry out expenditure towards the trials, product support, etc. for a long duration of 3 months and beyond. The same was communicated to the User. An Internal Enquiry Committee was constituted on 23.01 2019 and committee submitted its report on 13.11.2019. Committee examined all the project documents thoroughly. Internal committee found that the project is completed in line with set procedures and all the decisions are taken collectively involving Users. It is agreed as stated by the PAC committee that the imported laminated balloon was not utilized for trials within project PDC. However, the project goals were met using indigenously developed improved PU coated fabric. The imported laminated fabric balloon was subsequently deployed and utilised for other DRDO projects as stated earlier. Further the committee found that the laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by DRDO Scientists facilitating subsequent indigenous development of laminated fabric balloon. Hence, the expenditure of Rs.6.2 Cr may not be treated as infructuous."

(Observation/Recommendation Para No. 5 of Part B)

15. Another glaring issue which has come up not only during the examination of this para but in other subjects relating to DRDO is the delays and cost escalation in their projects. This particular project viz. Nakshatra was initially sanctioned in July 2011 at the cost of 48.80 crore. However, the project cost was consequently revised to Rs. 58.80 crore in October 2013 with the revised probable date of completion (PDC) June, 2016 instead of the original one, i.e., December, 2014. Although the project was completed at a cost of 49.50 crore finally, the Committee are in a dithering state as to why the project cost was hiked to the tune of almost 10 crores and then the same was also not utilized. This is undoubtedly a case of wrong financial projections and goes against the principles of prudent financial management. If seen in the backdrop of extending the field trials for the Army by DRDO on the ground of

lack of funding, this issue assumes special significance. The Committee in no uncertain words recommend that the internal inquiry as recommended in the preceding paragraph should also cover these aspects and responsibility be fixed, if required, under intimation to the Committee. They also recommend that all-out efforts be made to obviate instances of such nature which include wasteful expenditure as well as cost and time escalations. At least now, they be apprised of the outcome of the Qualitative Requirements as finalized by the Army

16. The Ministry of Defence in their Action Taken Note have submitted as follows:

"It is agreed that the original sanctioned cost of the project was Rs.48.8 crores. After two and a half years of project execution, it was realized that development of indigenous laminated fabric balloon needed more time than anticipated. A decision was taken to procure laminated fabric balloon. A budgetary offer of Rs.10 Cr. was obtained from M/s RosAeroSystems, Russia. Accordingly, an additional fund of Rs.10 crores over the original sanctioned cost of Rs.48.8 crores was sought. The project cost was revised to Rs.58.80 Cr. vide Govt. letter no. DARO/03/342/P/1/2710/D(R&D) dated 29/10/2013 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No. 958/MoD/Fin/(R&D) dated 24/10/2013.

Although the funds were available in the project, a considered decision was taken in concurrence with the user in 10th EB to close the project after completion of trials at Tibri within project PDC i.e. 30 June 2016 followed by a new Project of Product Support mode for 02 years.

DRDO communicated to user multiple times to provide the QR for taking up Product Support Category Project. However, the Army has still not finalised the QR for the medium size Aerostat. In the meantime, the user has projected a requirement of Tactical (small size) Aerostat, stating that operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017. QR is still awaited from the user.

Cost overrun in DRDO projects are rare. However, time overruns are there. DRDO projects are completed in sync with help from users, production agencies and private agencies. Users provide platforms and trial support, OFB's & Defence public sectors are involved in production, QA agencies are responsible for timely clearance of certification requirements. Some of the subsystem developments are undertaken with the help of private vendors.

However, it may be noted that R&D is an area of uncertainty where certain unknowns are explored. In addition to taking design projects where the subsystems are already matured, DRDO also has to undertake Technology Development projects and Science & Technology projects where the technology readiness levels may be at intermediate and low levels respectively increasing the risk of delays. Certain high risk and high pay off projects and blue sky research has also been undertaken where there is extremely high chance of delays and also failures.

However in recent past, several measures have been taken to mitigate the cost & time overrun."

Vetting Comments of Audit

"An additional Rs 10 crore over the original sanctioned cost of Rs 48.8 crore for the procurement of laminated fabric balloon was not utilized for project objective. Further, DRDO was silent on PAC direction to conduct an internal inquiry by DRDO to find out the reasons for the lapses & fixing the responsibility for including wrong financial to projection".

Response of the Ministry to the Audit Vetting Comments

"The sanctioned cost of the project was Rs 48.8 crores. After two and a half years of project execution, it was realized that development of indigenous laminated fabric balloon needed more time than anticipated. A decision was taken to procure laminated fabric balloon. Accordingly, an additional fund of Rs.10 crores over the original sanctioned cost of Rs 48.8 crores was sought. The project cost was revised to Rs 58.80 Cr. vide Govt. letter no. DARO/03/3421P11127101D(R&D) dated 2911012013 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No.958/MoD/Fin/(R&D) dated 2411012013. However only an amount of Rs 6.2 crores was utilised for the procurement of laminated balloon.

An Internal Enquiry Committee was constituted on 23.01.2019 and committee submitted its report on 13.11.2019. All the project documents have been examined thoroughly by the committee. Committee found that the project is completed in line with set procedures and all the decisions were taken collectively involving Users.

The internal inquiry has been conducted as directed by PAC and its findings as incorporated in the ATN submitted to O/o DGADS are as follows:-

The import of laminated fabric balloon was part of project risk mitigation strategy. The indigenously improved PU coated nylon fabric balloon was able to demonstrate the COMINT payloads successfully till the completion of project. All the functional aspects of the system were demonstrated at Agra and at User Designated site also during Users Associated Technical Trials(UATT). The success of the project was also endorsed by Users Upon successful demonstration and completion of project. The Users suggested to incorporate certain additional payloads and modifications in the system and conduct extended trials for two year. Accordingly, based on the deliberations with Army draft QR was forwarded to Army for approval, in order to take up a new project. As a consequence, the imported laminated balloon remained as standby. after completion of project. requirements emerged from other DRDO labs and the Imported balloon was deployed continuously for 60 days as an airborne platform for testing of important payloads. Moreover, as a spin-off of learning

from the study imported balloon, the development of indigenous laminated fabric technology has been expedited, matured and is available for future requirements. Hence, the expenditure on imported balloon may not be treated as Infructuous.

17. The Committee do not find the replies of the Ministry/DRDO on their observations concerning Development of an Integrated Aerostat Surveillance System by DRDO to be convincing.

Considering that the objective of the project was to indigenously design, develop and realize an Integrated Aerostat Surveillance System, in the first instance, import of laminated balloon itself is not justifiable. It is seen from para 5 of the Minutes of the 2nd Executive Committee Board meeting on project Nakshatra, held on 5th September, 2012, that the Chairman of the Board had directed that the initial system be configured around PU Coated fabric. As per the observation made at the meeting, development of alternate technology was to be made parallelly. Similarly, as seen from para 3 of the 3rd Executive Board meeting held on 20th March, 2013, the Chairman of the Board was once again categorical in stating that, development process of laminated fabric which was in the Technology Development (TD) category needed to be developed indigenously, must be undertaken on top priority. The Chairman had also inter-alia directed at the Executive Board Meeting that development of Aerostat Balloon should be realized with indigenous fabric, and not through import, within the projected date.

Considering the fact that Chairman of the Board had advised ADRDE to initiate the proposal for setting up pilot plant for development of laminated fabric balloon of limited required quantity under GOCO Model, the Committee fail to understand as to why the balloon was imported. The Committee would also like to know as to why the import was routed through M/s Pipavav Shipyard Ltd., and not directly by DRDO. The reply of the Ministry is not clear on the main concern expressed by the Committee regarding necessity for importing the balloon. The Committee accordingly desire that the entire gamut of issues relating to import of balloon need to be looked into and, the Committee be apprised of the details relating thereto.

CHAPTER II

OBSERVATIONS/RECOMMENDATIONS WHICH HAVE BEEN ACCEPTED BY THE
GOVERNMENTObservation/Recommendation No. 1 of Part A*(Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant)*

In their examination of Para 6.1 on "Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant" based on the C&AG's Report No. 19 of 2016, the Committee find that Combat Vehicles Research & Development Establishment (CVRDE), placed an order for development of a mobile Gas Plant, at a cost of ` 97.33 lakh despite no demand from the Army for Nitrogen gas generator plant. In Committee's view, the development of Gas Plant by CVRDE was unwarranted as the plant had already been developed by the firm, M/s GEM Pressure Systems for DRDO in July 2010 and supplied to Defence Research and Development Laboratory (DRDL) in January 2011. However, the gas plant was not used for intended purposes in the field areas/operations for three years.

[Para No. 1 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

Nitrogen plant ordered by DRDL, Hyderabad & CVRDE, Chennai are different. The Nitrogen Plant ordered by DRDL is a static plant and rated upto 150 bar pressure for in house Nitrogen filling operations. The plant ordered by CVRDE is chassis mounted mobile Nitrogen Gas Generation rated upto 300 bar pressure with different specifications. DRDL procured Nitrogen Gas Generation Plant (2 Nos) at the cost of Rs. 1.1 Crores during 2016 and installed one at the Missile Integration Facility (MIF) of BDL and another at DRDL.

The unit installed at BDL is fully operational and used for pressurising Canisterised missiles with Nitrogen gas to protect the missile sub-systems from the external environment and for conducting leak Tests.

The Second Plant was installed at Heat Treatment Centre of DRDL to supply Nitrogen gas required for Liner removal of rocket motor casings. Nitrogen gas supply has to be maintained during complete processing time which can extend up to minimum of 12-15 hours for clean removal of Liner which enable the direct reusability of metallic casing. The plant is fully utilised to remove the liner from the solid propellant rocket motor casings and re-use the metallic casing.

Mobile Nitrogen Gas Generator Plant was built as per the technical specification of CVRDE. As CVRDE is the nodal Lab for development of Arjun MBT, this specialist / maintenance support vehicle was conceived & configured the plant for charging of Hydro-gas Suspension Units [HSUs] of Arjun MBT in the field scenario. This plant is different as compared to the earlier two plants (Developed by M/s GEM Pressure systems in July 2010) which have been made for DRDL. Those plants were static,

while this plant with high pressure gas bottles [300 bar] was built on mobile platform [Ashok Leyland Stallion – Military Class Vehicle] for operational effectiveness of Arjun tanks.

Arjun is only indigenous tank held by Army. These tanks were inducted during 2004 to 2010. Two regiments were raised with these tanks and deployed in desert area at Jaisalmer. Other than Arjun, Army do have T-72 & T-90 tanks of Russia. These T-series tanks are having mechanical suspension system (i.e.) torsion bar suspension. Whereas, Arjun is having Hydro-gas suspension system and the same has been introduced to Army for the first time. This suspension requires nitrogen gas for maintenance of the vehicle. Therefore, Army is not aware of the requirement of nitrogen gas plant then. In general, all the maintenance/specialist vehicle would be provided by Original Equipment Manufacturer [OEM] to Army. In similar line, CVRDE/DRDO being original designer of Arjun MBT have developed the specialist vehicle – mobile nitrogen generator plant and handed over to Army in 2016.

The Mobile gas plant was used In-house by CVRDE for generation of Nitrogen gas, for the development of Arjun MBT Mk-II. Subsequently, performance evolution and consistency in Nitrogen Generation plant was done. It being a Technology Development (TD) project, gas plant was offered to Army only after the evaluation process was over.”

Observation/Recommendation No. 2 of Part A

(Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant)

The Committee note that nitrogen gas is very important and critical to keep the Arjun MBT in war-fit condition as it is necessary for achieving cushioning effect of the hydro-gas suspension unit, for the functioning of the braking system under dynamic condition and to keep the Gunnery Main Sight moisture free. They further note that during war, a strategic support vehicle would be needed which shall be incorporated with all the self sufficient sub-systems for the generation of nitrogen gas from the atmosphere on a military class chassis, so as to have comparable mobility to move along with the Army. However, the Committee are dismayed to note that the acquired gas plant from M/s GEM Pressure Systems remained unused for three years as it was steadily being used by DRDL for performance evaluation and consistency in nitrogen generation plant despite being procured for the end user i.e. the Army. Also, Army had initially stated that they did not require the gas plant as their nitrogen gas cylinders were being refilled through the Ordnance factories and were reluctant to receive the procured gas plant as they were self sufficient with the available resources. In this regard, the Committee observe that DRDL is the nodal agency to provide for the specific needs of the armoured brigades of the Army and were mandated to develop the nitrogen gas system for Arjun MBT but due to developmental exigencies, the gas plant was procured from a private vendor terming it as a R&D project. They also note

with concern that acceptance of the gas plant by the Army for trials appeared to be under duress as the Director General Mechanised Forces (DGMF) had stated that CVRDE had offered them the gas plant on 'no cost and no liability to the Army'. Also, the Army has not placed any bulk orders for the gas plant indicating that the development of gas plant by CVRDE has overshoot the time frame of developmental window and the end user is dependent on private manufactures for the gas plant. The Committee are of the view that since CVRDE is mandated for developing and providing critical hardware for the armoured wing of the Army, nevertheless they are lagging behind in this area. They find that the establishment did not take the end user on board and to supply them for their tailor made requirements. The Committee, therefore, desire that all the stakeholders should have a consensus for the creation of such important hardware as it has a direct bearing on the work horse of the armoured regiments i.e. Arjun MBT which is essential in war time scenario. They therefore recommend that the Army should lay down their explicit requirements in future to establish a proper chain right from the conception stage to manufacturing of the end product and subsequently handing it over to the Army for trials and eventual use.

[Para No. 2 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

a. "DRDL's mandate: DRDL is a multi-disciplinary Missile System laboratory with thrust on design, development and flight evaluation of various types of Missile Systems for armed forces.

The Nitrogen Plant (02 Nos.) ordered by DRDL is a static plant and rated upto 150 bar pressure for in house Nitrogen filling operations. One plant is installed at the Missile Integration Facility (MIF) of BDL and another at DRDL. The unit installed at BDL is used for pressurising Canisterised missiles with Nitrogen gas to protect the missile sub-systems from the external environment and for conducting leak tests.

Another plant acquired by DRDL was installed at Heat Treatment Centre of DRDL and is fully utilised to remove the liner from the solid propellant rocket motor casings and re-use the metallic casing.

CVRDE's mandate: With respect to Design, Development, Testing and Performance evaluation of tracked armoured fighting vehicle and their variants, CVRDE is the nodal agency in DRDO to undertake such activities to support the armed forces.

The gas plant acquired from M/s GEM Pressure Systems was used in-house by CVRDE for generation of Nitrogen gas, for the development of Arjun MBT Mk-II since 2012. Subsequently after the receipt of the plant, performance evaluation and consistency in Nitrogen Generation plant was done and payment was made only in 2014. The equipment was continuously being used in CVRDE. It being a Technology Development (TD) project, gas plant was offered to Army only after the evaluation process was over.

The mobile nitrogen gas plant developed by CVRDE is being used by EME Workshop since it is handed over to them. This vehicle is developed on military class Ashok Leyland Stallion Chassis, which has desert mobility, and can be moved along with the tanks during war operation. Army was procuring the required nitrogen gas from ex-trade & the same procedure would be difficult during the operations. Therefore, this vehicle issued by DRDO is useful to Army and enables maintenance at deep operational area.

b. The mobile nitrogen gas plant vehicle is developed by CVRDE on military class Ashok Leyland Stallion Chassis, which has desert mobility, and can be moved along with the tanks during war operation. CVRDE proposed to hand over the plant to Army, as the performance of the plant was found to be good and consistent in compliance to the decision of XIth Steering Committee, after a due deliberation with the User. Accordingly, CVRDE requested Army to designate the agency for the same, vide Letter No. CVRDE/ARJUN/PMA/47 dated 28th Aug., 2014 . For which, DGMF agreed and confirmed that the Nitrogen generator vehicle was to be taken over by 140 Armd Bde [246 Armd Workshop], vide Letter No. A/36026/MBT Gen/GS/IP(AC) dt. 3rd Sept., 2014. For which, to the CVRDE initiation vide Letter No CVRDE/ARJUN/PMA/47 dt. 8th Dec., 2014. Army nominated their personnel from 246 Armd Workshop vide Letter No. 70301/MBT/Wksp dt. 23 Dec., 2014. and got trained

CVRDE has already taken up the initiative and got the BA No. for the vehicle on 14.9.2015 [vide Army DGIS No. B/28262/GS/MISO/TMS/BA No. dated 2nd Sept 2015 and DRDO HQrs Letter No. DHRD/92481/CVRDE/BA/C/M/02 dated 14th Sept 2015, as the BA No. was necessary for forwarding the vehicle to field area.

There was no necessity for Army to accept the equipment under duress. There was letter from DGMF to Deputy Director Audit in 2013, which only mentioned this statement "No Cost No Liability". However, the equipment was handed over to Army as per the advice of 11th Steering committee meeting held under the chairmanship of Secretary Defence Production in July 2014.

C. With reference to bulk order, the Army [DG EME (CV)] stated that this one vehicle is adequate to extend the maintenance support to the existing Arjun fleet. The development of mobile gas plant was done well within the PDC of the order and there is no lagging behind in this area. As per Project Procedures for Formulations of Methodology (PPFM) in vogue, Army representatives are involved in the development process in its initial stages in the Mission Mode Projects. In Technology Projects (TD) projects, after maturity of the hardware / system only, it is demonstrated to Army/ User.

Observation/Recommendation No. 3 of Part A

(Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant)

In this particular case, the Committee would like to bring to light the fact that the Army, specifically the DGMF does not effectively require the gas plant for its regular maintenance or operational requirements as they have established their supply chain through the Ordnance factories. They wonder as to why DRDO/DRDL did not develop or augment the existing facilities at Ordnance factories for development of the gas plant due to its mission criticality in times of war. The Committee are not oblivious of the fact that development of military technologies and their incorporation in hardware is a time consuming process but wonder if a private firm could develop the gas plant, why it took DRDO/DRDL five years in developing the same and reaching finality. They accordingly recommend that DRDO should furnish details about the development and subsequent production of the gas plant to the Committee.

[Para No. 3 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

DRDL is a multi-disciplinary Missile System laboratory with thrust on design, development and flight evaluation of various types of Missile Systems for armed forces. The mobile nitrogen gas plant vehicle is developed by CVRDE on military class Ashok Leyland Stallion Chassis, which has desert mobility, and can be moved along with the tanks during war operation. In general, DRDO exploits knowledge base and expertise available with the industry depending on their capability for the development of technology. Ordnance Factories (OF) are involved in the product development of DRDO, if it fits in their product range. In future also, Army can place order on OFs, for the supply of Nitrogen gas plant, sourcing from M/s GEM Pressure Systems, if required. Development of Hardware only was done by private firm (i.e M/s GEM Pressure Systems) based on conceptualization, technical requirement and design by CVRDE/DRDO. Subsequently performance evaluation was done from end use point of view.

The nitrogen gas is very important for up-keeping of the tank, as its unavailability will affect both the mobility and firing capabilities, which are all mission critical features of the tank. At the same time, CVRDE/DRDO would like to re-iterate again that the nitrogen gas requirement can be met from open market of the near-by area during the peace time, as being done now through ordinance channel. Further, in the DGMF Letter No. A/36026/ MBT Gen/GS/ IP (AC) dated 17.12.2013 addressed to the Dy Director of Audit, it was mentioned that the Ordnance Depot receives its supplies of Nitrogen gas from Jodhpur Gas Agency, Industrial Area Boranada, Jodhpur. However, during war scenario, there won't be any open market at war zone. If the tank moves inside the enemy territory, it would be impossible to locate the source for the gas at those places. Under the circumstances, it was felt that there would be a need for strategic support vehicle, which shall be incorporated with all the

self sufficient sub-systems for the generation of nitrogen gas from the atmosphere, and also on a military class chassis, so as to have comparable/matching mobility to move along with the Army during the war

Details of Development is as follows :

- SO No. CVRDE/12AT0132/RGD/11-12/LP dt. 3.10.2011
- Receipt & Acceptance CRV No. 13CRV0108 dt 17.8.2012
- Internal trials, usage for CVRDE's requirements & final 10% payment was cleared on 17.03.2014 on satisfactory functioning of the plant.
- Although this was an exploration & development exercise as stated in the Equipment Procurement Committee [EPC] approval paper, CVRDE proposed to hand over the plant to Army, as the performance of the plant was found to be good and consistent in compliance to the decision of XIth Steering Committee under Chairmanship of Secretary (DP) after due discussion with the user.
- To CVRDE request 28th Aug., 2014, DG MF agreed and confirmed that the Nitrogen generator vehicle was to be taken over by 140 Armoured Brigade [246 Armd Workshop], vide Letter No. A/36026/MBT Gen/GS/IP(AC) dt. 3rd Sept., 2014.
- Since the plant is a combination of different sub systems namely- Nitrogen generation unit, diesel operated generator, air compressor, high pressure booster, high pressure gas cylinders, storage fitment, etc., the proper training was extended to Army nominated personnel from 246 Armored Workshop [Army Nomination Letter No. 70301/MBT/Wksp dt. 23 Dec 2014] and got trained.
- In the mean time, CVRDE has already taken up the initiative and got the BA No. for the vehicle on 14.9.2015 [vide Army DGIS No. B/28262/GS/MISO/TMS/BA No. dated 2nd Sept 2015 and DRDO HQrs Letter No. DHRD/92481/CVRDE/BA/C/M/02 dated 14th Sept 2015], as the BA No. was necessary for forwarding the vehicle to field area.
- After completing all the subsequent formalities, the Army crew from 246 Armoured Workshop visited CVRDE and collected the vehicle vide Issue Voucher [No. IV/EXT/MM/B-up RG/Loan/03 dated 29th April 2016]. The Army confirmed that they had received the plant on 15th July 2016 & it was under serviceable condition vide Letter No. 70301/MBT/Inst/Wksp dated 23rd Aug., 2016.
- As of now, the vehicle has already reached 246 Armd Workshop [140 Armd Brigade], Jaisalmer, Rajasthan, and being utilized for further experimentation and exploitation in the field area.
- Vide Letter No. 70301/MBT Arjun/Wksp dt. 20 Feb 2017, the Army stated that the plant is in working condition & is useful for the workshop. Further, they have stated that the plant is being continuously used for the generation of gas for the maintenance & up-keeping of Arjun MBT fleet of the formation.

➤ Further, the plant was under continuous utilisation & usage for the above purposes as long as it was in CVRDE.

Vide Letter No. B/25539/MBT/Arjun/EME CV-1 dt.20 Nov 2018, the User [DG EME (CV)] stated that this one "Mobile Nitrogen Gas Generation Plant" vehicle is adequate to meet the existing requirements of MBT Arjun and further procurement of equipment is not required as of now."

Observation/Recommendation No. 5 of Part A

(Infructuous Procurement of Material)

In regard to Para No 6.2 on "Infructuous Procurement of Material", the Committee observe that DRDL was aware of the fact that C-103 material had limitations to resist high temperature generated in the scramjet engine combustor and the material had also failed in the flight tests of short duration of 20 seconds, yet, 1329 kgs of C-103 material was procured valuing ₹ 4.83 crore, which eventually proved wasteful.

[Para No. 5 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

The Scramjet technology program was one of the most ambitious programmes of advanced countries like USA, Russia, China, France, Australia and Japan". Worldwide it is a closely guarded technology and the detailed information including fabrication technology with C-103 material is not available in open literature. C-103 is one of the most suitable and reliable material for the combustor chamber of Scramjet engine for high temperature application. Two experts committees under the Chairmanship of leading experts from ISRO and DAE had cleared the Scramjet engine design and fabrication methodology using C-103 material. C-103 is a strategic material and the lead time in procurement is high and decision was taken to procure the material considering tight project schedule.

The gas temperature in the engine goes up to 2500°C, but the engine wall material does not cross 1100°C temperature. So this material is still valid and can withstand this kind of 2500°C temperature with oxidation resistant coating. Even though C-103 material could not be used for present HSTDV mission, it has been used for developing oxidation resistant coating for long duration hypersonic flight, establishment of various welding methodologies of C-103, development of long duration thrusters in other programme. Hence, the procurement has not been wasteful.

Vetting Comments

"The facts and figures mentioned in the reply to Questionnaire (PAC (2018-19) 131st Report (16th Lok Sabha) have been found correct. The Report is vetted".

Observation/Recommendation No. 6 of Part A

(Infertuous Procurement of Material)

Scramjet or supersonic combustion ramjet is an air breathing jet engine in which high vehicle speed is used to compress the incoming air forcefully before combustion in supersonic airflow allowing it to operate efficiently at extremely high speeds thus generating very high temperatures in the range of 2227°C to 2527°C. Committee's scrutiny of the subject reveal that for the development of scramjet engines, DRDO procured Nimonic C-263 and Niobium C-103 materials for their high temperature resistance properties. However, the Committee note with concern that both the materials eventually failed in the testing phase and some quantities of the materials were used in other on going research projects, thus defeating the very purpose for which these were originally procured for. They would like to highlight the fact that DRDO contested C&AG's claim of unwarranted procurement and eventual wastage by stating during their audit, the DRDO scientists could not properly explain the logic behind the move. However, the Committee are of the opinion that in the field of research and development, conclusions are reached by the way of experiments applying trial and error method but are of the considered opinion that materials procured should be used for their intended purpose and not to be used for other ongoing projects. Since development of new hardware is a technological intensive activity, the Committee recommend that DRDO and its associated laboratories may draw a comprehensive roadmap by undertaking thorough due dilligence for the development right from the conception stage till the manufacturing stage so that delays are minimised. The action initiated/taken in this regard should be intimated to the Committee.

[Para No. 6 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

The comments have been well taken and it is agreed with view point of committee that the materials procured should be used for their intended purpose and not to be used for other ongoing projects.

With regard to the recommendation of the Committee to draw a comprehensive roadmap, DRDO has replied as under:

Project HSTDV has provided a roadmap of its activities which is as follows:-

- a) Activities (Ground Resonance test, Vibration tests of sections) for second flight of HSTDV are under progress.
- b) Electrical integration & phase checks of Cruise vehicle sections are under progress.
- c) Second flight trial to be taken up shortly.

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

Observation/Recommendation No. 7 of Part A

(Infructuous Procurement of Material)

Coming to inquiry of this subject, the Committee observe that C-103 material could resist only 1370C whereas the heat generated in the scramjet engine reached upto 2527C. However, DRDO stated that the high temperature generated was the gas temperature. The Committee take serious note of this discrepancy and recommend that DRDO may furnish the specific reasons for procuring the material out of which only 107 kg of C-103 was used and remaining 88 per cent of the materials was used in ballistic missile programme and other R&D programmes. Having been apprised of the alternate usage to which C-103 can be put to use, the Committee recommend that procurement for such alternate projects should be made project specific and that possible alternate utility could not be used to justify procurement of unsuitable material. They further desire to be apprised about the present status of the project with complete details to be forwarded to them for taking the issue to a logical conclusion.

[Para No. 7 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

a) Explanations regarding the gas temperature: The temperature in the engine is of the order of 2,500 degrees because the hot flame is actually coming out of the engine. This is the gas temperature. The metal temperature on the wall is around 1,000 degrees for the 20 second duration. It takes time for the metal to heat up. So, it is not a wrong decision to select this material. Even now the temperature predicted is 1,000 degrees and this material can withstand. But after procuring the material, when it was attempted to use this material for fabrication, a number of fabrication issues came. The original design was to have an external structural layer of C-263 with C-103 inside which is exposed to the heat. The combination of these two materials has faced some welding problem. This has never been done earlier. This material has to be given silicide coating without which the properties were going to drop. This coating application process was not readily available for this configuration. However, the C-103 material is still valid as it experiences approximately 1100 degrees centigrade.

b) Reasons for procurement of the C-103 material are:

From design studies carried out for Scramjet engine, a single module double wall configuration with C-103 Niobium based alloy as the inner wall and C-236 Nimonic alloy as outer wall was finalized. Among all refractory materials, Niobium base C-103

was found to be ductile, light weight, possessing good fabricability. C-103 material for the scramjet engine was a reliable material for high temperature application. Detailed Design and thermo-structural analysis of double wall Scramjet engine was carried out by structures group (DOFS), DRDL and independently verified by Design Experts at IGCAR, Kalpakaam in Oct 2007. In 2007, a review committee consisting of leading experts from various organisations and chaired by Dr. AR Acharya, well known structural expert from ISRO reviewed the Thermo-structural design of Scramjet engine and cleared the design of double walled construction of Scramjet Engine using C-103& C-263 materials for further fabrication.

c) Reasons for not being able to use the C-103 material for scramjet engine for the present HSTDV mission:

In the single module double wall configuration of scramjet engine manufacturing limitations were experienced to determine suitable form of welding for dissimilar materials C-103 & C-263. Silicide coating development was also taking time. Due to these issues C-103 material was not used. As the objective was to fabricate an engine, an alternate design was developed with two module engine using C-263. This modified design reduced the stresses and deflections in the engine and C-263 was meeting the design requirements. So C-263 material was used for present HSTDV mission.

d) Being aware of the high temperature capability of the C-103 material, instead of keeping the remaining material idle, gainful utilization of the same was carried out for developing oxidation resistant coating for long duration hypersonic flight, establishment of various welding methodologies of C-103, development of long duration thrusters in other programme.

The remaining C-103 material was used to establish welding and coating technologies so that it can be used for long duration engines in future. Also, this has been used in another project for making thrusters. Additionally, this material has been used for manufacturing high temperature furnace baskets and furnace hearths.

Presently, this material has been used to fabricate one panel of Cooled Scramjet combustor. Thermal tests have been carried out. Also, different types of coating tests are being carried out for long duration hypersonic mission.

- The committee recommendations are well taken and it is fully agreed that the procurements should be project specific.

Status on Consumption of the balance C-103 material

- Out of the balance 160 Kg of C-103 material, 52 Kg was used for trials fabrication of cooled combustor for long duration missions of HSTDV (Apr-May 2019).
- From the balance 108 Kg of C-103 material, 30 Kg was used for conducting coating trials and determining brazing parameters (May 31 to July 2019)

Present status

- Out of balance 78 Kg of C-103 material, 55.30 Kg has been used for coating trials and fabrication of Scramjet Combustor panel (August 2019- January 2020).
- Balance 22.7 Kg of C-103 material is being used for further coating tests."

Vetting Comments of Audit

"The facts and figures mentioned in the reply to Questionnaire (PAC (2018-19) 131st Report (16th Lok Sabha) have been found correct. The Report is vetted".

Observation/Recommendation No. 6 of Part B

(Irregular Sanction and Expenditure of ₹ 5.20 Crore on Construction of Vehicle Testing Ground after Completion of the Project)

In regard to Para No 6.2 on "Irregular Sanction and Expenditure of ₹ 5.20 Crore on Construction of Vehicle Testing Ground after Completion of the Project", the Committee observe that sanction was accorded for construction of a Vehicle Testing Ground at Vehicle Research & Development Establishment (VRDE), Ahmednagar at a cost of ₹ 5.20 crore in April 2014. The Project was based on VRDE's proposal of March 2005 to meet the specific requirement of testing the Unmanned Ground Vehicle (UGV) being developed on 2.5 Ton 'B' vehicle. However, the UGV Project was already closed in February, 2008.

[Para No. 6 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

It is submitted that the subject works for UGV (Un-manned Ground Vehicle) Test track was an independent infrastructure development work and was not a part of any sanctioned project. 2.5 Ton 'B' vehicle refers to the payload capacity while its GVW (Gross Vehicle Weight) is 7.650 Ton. As such, the Statement of case for UGV Testing Ground was generic in nature with design spec of max GVW of 10 Ton class vehicles. Thus, the Statement of case (SoC)/specifications for UGV Testing Ground, as permanent testing infrastructure facility, covered mini to heavier UGV platforms, so as to cater for similar projects in Tele-operated /Autonomous UGV systems for on-going, in-pipeline, planned and futuristic projects. Therefore, development of this infrastructure testing facility and the PDC of any specific project cannot be linked.

Vetting Comments of Audit

Reply is not tenable as requirement of testing ground was projected in March 2005 specifically to meet the requirement of testing the UGV, for which TD project was

undertaken by VRDE. The said UGV was being developed on a 2.5 Ton 'B' vehicle with GVW of 10 Ton at a speed of 82 kmph under UGV project sanctioned during April 2004. However, the UGV project was closed during February 2008 before sanction for construction of testing ground was accorded.

Response of the Ministry to the Audit Vetting Comments

The UGV Testing Ground, being a permanent test facility, was initiated and pursued with long term vision. At that point of time, reference was given in the SoC for then on-going project. In addition to this, UGV Testing Ground was required for various pipeline/ planned/ futuristic UGV projects/ activities, during the year 2006-2008, before sanction of UGV Testing Ground. The supporting facts are as: The SoC for UGV Testing Ground mentioned Remotely Controlled and Autonomous UGVs for multi-role military applications. The TD UGV (*based on 2.5 Ton 'B' vehicle with GVW 7.650 Ton, Not 10 Ton, as brought by Audit*) was a Remote Controlled UGV and development of Autonomous UGV was planned/ pipeline activity. In addition to TD UGV project, other UGV projects i.e. India Singapore collaboration project for Autonomous UGV phase-I & phase-II (pre-sanction activities started in 2006, Task force Minutes dtd 21Nov2006, and Agreement signed under India—Singapore Defence Co-operation DSTA singapore for phase-I on 22 Feb 2007 and UGV for NBC Reconnaissance under NBC Def. Technologies programme (pre-sanction activities started in 2007, Peer review minutes dtd 16 Oct 2007, were in pipeline and these projects required UGV Testing Ground. UGV Testing Ground and Technologies for Autonomous vehicles were also projected in DRDO's Eleventh Five year plan (2007-2012), as planned activities. User's positive response in the form of Robotic Requirement of Indian Army and Minutes of Meeting with Additional Director General of Perspective Planning (ADGPP) supports need of UGVs for multiple roles as a part of future combat system. These activities before sanction of UGV Testing Ground in April 2009, conclude that UGV Testing Ground was planned to be used for all then on-going/planned/pipeline/futuristic activities..

It may be further noted that the aspects of creating UGV test ground was explained to the PAC during Oral evidence by the Department of Defence (R&D). Based on the explanation submitted by the Department of Defence (R&D) during Oral evidence, PAC (2018-2019) in its One Hundred and Thirty First Report (Part – II, Para 6.2, Point No. 7) has noted that the UGV Testing Ground was proposed as a long term vision for testing UGVs in lighter to heavier weight categories for current/planned /futuristic projects (para1 of PAC's Observation No. 2 refers).

The conventional vehicle test track facility lacks controlled, dedicated and isolated testing environment for Tele-operated & Autonomous UGVs to ensure safe operations, availability of UGV testing ground was necessity to pursue the research and development activity in the field of UGVs. It may please be noted that due to non-availability of dedicated UGV test ground during 2007-08 (during currency of then on-going TD UGV project based on 2.5 Ton 'B' Class Vehicle), extensive safety

arrangements were made on conventional test tracks and other testing activities were stopped completely, vacated & shut down during UGV testing, which is not practical on day-to-day/regular basis. Therefore, with the help of appropriate arrangement on conventional test track, the requisite testing of TD UGVs, were carried and thereby, demonstrated the technologies of remote controlled TD UGV systems and stated project objectives were met and project was closed.

Subsequent to commissioning of the Test Ground, endurance trials (mileage data: approx. 2950 km) of 2.5 Ton 'B' vehicle based TD UGVs, not a part of the original scope of project, were carried out to assess the reliability aspects. Further, this Test Ground served the needs of other UGV projects undertaken by VRDE. Hence, the Test Ground, as an infrastructure, has been gainfully utilized."

CHAPTER IV

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

Observation/Recommendation No. 4 of Part A

(Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant)

Consequent to enquiring this subject, the Committee in general infer the need to re-look in to the functioning of DRDO and its associate laboratories as they are of the view that under confidentiality or secrecy, development of sensitive technologies has been a very time consuming affair. They are of the view that DRDO needs its operational freedom to function more effectively and deliver world class products on time. Also, the Committee are of the specific view that synchronization is not effective between the DRDO and the armed forces as they feel coordination among the agencies has affected the systematic development of military hardware. The Committee desire the administrative Ministry i.e. the Ministry of Defence to play a proactive role in better synchronisation and coordination among the agencies as both are mutually interdependent on each other and their association has direct bearing on the overall security and preparedness of the Country. The Ministry may provide the Committee steps/measures proposed to be taken in this regard.

[Para No. 4 of Part 'A' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Ministry

DRDO's Mandate is to develop state of the art technology for the requirements of user/Army. However the whole cycle for conceptualization, development, lab scale experimentation, field level evaluation, demonstration to the user of sensitive technology for usage in exotic /hazardous user environment pose major technology challenges for DRDO. However this whole cycle require good amount of time to bring the hardware to maturity level for induction.

In addition to the above, DRDO has evolved & complying to a policy for pursuation & execution of various projects depending upon the product's technological level/maturity in terms of S&T, TD & MM, as per the document 'Procedures for Project Formulation and Management - PPFM-2016'. The projects are being taken after due review at various levels [Lab, Cluster & DRDO HQrs.] with clear definition of its scope & objectives. Further on the User's interactions, various proactive measures have been taken by DRDO for close association with Army.

In order to ensure better coordination between DRDO and Army there are various review mechanism in place like Quarterly Interaction Meeting (QIM) and Vice Chief Review of projects Bi-annually. Apart from this, during review of each staff project there is a presence of User representative in each project.

An exclusive Directorate [DISB] at DRDO HQrs. is nodal agency for coordination of all the DRDO activities with the Armed forces. Army Officers and Personals were posted at various Labs to support the R&D activities. Oflate, specific deputation of Army Officers have been made to DRDO Labs as part of PMG for major projects. Recently, an recruitment call has been made to permanently position the Army Officers at DRDO as Scientists. In addition to the above, Scientists at various levels were attached to the different Army Regiments for two weeks attachment training programme in their area of research & developmental activities. All the above initiatives would help for better synchronisation and coordination for development of state-of-art the Defence products."

Comments of the Committee

Comments of the Committee please see Paragraph No. 6 of Chapter I

Observation/Recommendation No. 1 of Part B

(Development of an Integrated Aerostat Surveillance System)

In their examination of Para 6.1 on "Development of an Integrated Aerostat Surveillance System" based on the C&AG's Report No. 15 of 2017, the Committee observed that the very purpose of import of a balloon made from laminated fabric was to attain the objective of a medium sized aerostat without the constraints of endurance and shelf life as experienced using a polyurethane (PU) coated fabric aerostat. However, the balloon imported by the Aerial Delivery Research and Development Establishment (ADRDE), Agra for research purposes militates against the project's objective as consequently neither the aerostat was deployed nor Communication Intelligence (COMINT) payload was tested for the duration desired by the Army. Also, the claim about usage of the imported balloon with laminated fabric as a spare to cater for the unforeseen circumstances is incomprehensible to the Committee as the intended objective has not been achieved even after incurring to a total expenditure of ` 49.50 crore, out of which an amount of ` 6.20 crore pertained to importing of laminated fabric balloon, which remained idle eventually.

[Para No. 1 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Ministry

The core objective of project Nakshatra was to Design and Develop an Integrated Aerostat Surveillance System-Medium Size with deliverable 'One set of Integrated Aerostat Surveillance Medium Size System'. The system comprises of indigenous Laminated fabric balloon, COMINT payload, Winch and Mooring System, Active Pressure Control Health Monitoring System, Power Management System, Ground Control System, etc.

The statement of case (SOC) of the project proposal highlighted 'Laminated Fabric' Development as 'High Risk Area'. In order to mitigate the risk, in case of unavailability of laminated fabric it was planned to import the laminated fabric. In the

meantime, the balloon was planned to be developed using PU coated nylon fabric and COMINT payload was to be integrated and demonstrated. Further, it was envisaged to realize total 03 nos. of balloons with 01 no. to be kept as spare.

The efforts were made to develop indigenous laminated fabric till mid 2013. In spite of the best efforts put in by the lab, the indigenous laminated fabric development did not fructify due to technological complexity. In order to continue the project activities it was decided to use the improved PU coated nylon fabric which was concurrently developed by the lab (having 30% improved fabric life) and import one laminated fabric balloon. To this effect, a cost enhancement was sanctioned vide letter no. DARO/03/342/P/1/2710/D(R&D) dated 29/10/2013 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No. 958/MoD/Fin/(R&D) dated 24/10/2013.

The fabrication of balloon with indigenous improved PU coated fabric was initiated in June 2013 and was realized in Feb 2015. The procurement of laminated fabric balloon through import route was initiated in Dec. 2013 and was delivered in Aug. 2015.

After procurement, the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days. All the functional tests were carried out and the balloon was made ready for flight. The interfaces of all the subsystems of integrated aerostat system "Nakshatra" were made compatible to both PU coated and laminated fabric balloon. In addition, DRDO scientists learnt various technological aspects of laminated fabric balloon with respect to configuration, fabrication and sealing technologies involved in laminated fabric, panel and joint analysis, pressure drop study, inflation and deflation techniques, integration of interfaces, static balancing of different loads in inflated conditions, etc. This facilitated the development of indigenous laminated fabric and sealing technologies which have been subsequently matured and available for future use. This proved to be an intangible benefit from the imported balloon for maturing the indigenous laminated fabric balloon.

The integration efforts of Aerostat sub-systems on PU coated fabric balloon was started in Feb. 2015 and the maiden flight of Nakshatra was conducted on 21 Oct. 2015.

The initial flight trial and test results were very encouraging with indigenous balloon in terms of endurance requirement of 14 days meeting the QR provided by SI Dte, Army Hqrs. Based on the encouraging results, the trials were continued to mature all the indigenous technologies till April 2016 at Agra with user involvement.

During the 10th Executive Board meeting dated 27 April 2016, in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at user site as per scope of the project. Accordingly, user associated technical trials were conducted at user designated site at Tibri, Punjab.

The user endorsed that the user associated technical trials were successful and suggested for few improvements/modifications in terms of payload configuration and tether vide MoM 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016.

10th EB also directed to initiate a new project under product support (PS) category for 02 years duration, beyond PDC of current project, with 2-3 months of extensive user participation. Considering the above directive, imported laminated fabric balloon was kept as reserve to meet this ensuing requirement.

Subsequently, ADRDE pursued user for obtaining QR for taking up new project under PS. However, the user now envisage that the operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017. The user has offered QR for comments vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 1 Mar. 2018 for medium sized Aerostat and clarifications have been sought through multiple communications from ADRDE to the user. No firm QR is received from user till date.

In the meantime, other requirements emerged from DRDO sister establishments, CABS, Bengaluru and IRDE, Dehradun to test and evaluate set of sensors and Long Range Electro-Optic (LREO) device, respectively during Sept. 2018. In order to meet these requirements, the Nakshatra Aerostat system along with imported balloon was deployed as per test requirements.

Therefore, the laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by our scientists facilitating indigenous development of laminated fabric balloon."

Vetting Comments

(i) "The core objective of the project 'Nakshatra' was to design and develop an Integrated Aerostat Surveillance system using laminated fabric balloon. However, decision of DRDO to use balloon with PU coated nylon fabric instead of imported balloon with laminated fabric militates against the project objectives. Further, the decision to close the project in June 2016 when user acceptance to the User Associated Technical Trials was yet to be received was not correct as users suggested improvements/ modifications in terms of payload configuration in August 2016 i.e. after closure of the project. Further Executive Board (EB) before closure of the project (April 2016) deciding to initiate new project using laminated fabric under product support involving extensive user participation showed that project was closed without meeting the project objective."

Department's Reply to Auditing Vetting Comments:

The core objective of the project 'Nakshatra' was to design and develop an Integrated Aerostat Surveillance system- Medium Size. Design and development of the surveillance system was started with the development of laminated fabric balloon (which was one of critical technologies (High risk Area) which was highlighted in the Statement of Case, but it could not fructify due to technological complexity. In order to continue the project activities it was decided to use the improved PU coated nylon fabric which was concurrently developed by the lab (having 30% improved fabric life) and import one laminated fabric balloon(as risk mitigation strategy. Technology Demonstration (TD) projects are normally initiated by DRDO as feeder technologies for future or imminent MM projects. These are funded and monitored by DRDO with little or limited User inputs. The purpose is to develop, test and demonstrate a particular technology. Project objectives of this TD Project were met with indigenously developed improved PU coated balloon. Thus during the 10th Executive Board meeting daled 27 April 2016 in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at user site as per scope of the project and the project was closed in consultation with the user after successful demonstration at user site.

Accordingly, User Associated Technical Trials were conducted at user designated site at Tibri, Punjab. The user endorsed that the user associated technical trials were successful and suggested for few improvements/modifications in terms of payload configuration and tether vide MoVI 55340/ABC(Nakshatra) SI-1 1 dated 31 Aug. 2016. 10th EB also directed to initiate a new project under product support (PS) category for 02 years duration, beyond PDC of current project, with 2-3 months of extensive user participation, as User requested to provide product support

Vetting Comment

(ii) "The ministry claimed that the Nakshatra Aerostat system along with imported balloon was deployed as per test requirement and attached Annexure - I and Annexure - II as supporting papers. On examination, it has been noticed that Annexure - II is the project proposal and Annexure - I is the sanction letter of Project titled "Design & Development of Integrated Aerostat Surveillance System - Medium Size (NAKSHATRA)".

Department's Reply to Audit Vetting Comments

Nakshatra Aerostat system along with imported balloon was deployed as per test requirement and attached as Annexure A & B, which are the test reports submitted by DRDO labs (IRDE & CABS respectively).

Vetting Comment

(iii)"Ministry has not provided any evidence to support the claim that the tests were carried out successfully".

Department's Reply to Audit Vetting Comments

The test reports submitted by DRDO labs (IRDE & CABS respectively) are testimony that the tests were carried out satisfactory". The first phase trials with laminated fabric balloon of approx 60 days for electro optic payload and sensors/payloads from CABS have been completed in May' 2019. Another phase was planned in March-April'2020 at Tiberi, Punjab which is kept on hold due to Corona pandemic.

Vetting Comment

(iv)"The ministry's claim does not seem to be factually correct since ADRDE stated (July 2018) that it was in dialogue with Navy and BSF for demonstration & deployment of LREO payload on Aerostat system. Further, ADRDE stated that it was in process of developing electrical & mechanical interfaces for Aerostat platforms. However, IRDE stated (August 2018) that Platform integration & evaluation/trials was out of scope of the MM project and the development of Electro-Optical Payloads for Aerostat 'Nakshatra' was not linked with milestone of ADRDE project for Nakshatra".

Department's Reply to Audit Vetting Comments

Existing LREO payload from IRDE was chosen for conducting the trial (May 2019) on Nakshatra aerostat platform for exploiting its utility after the closure of Nakshatra project. Also, ADRDE was in dialogue with Indian Navy and BSF (July 2018) for demonstration and deployment of Electro Optic (EO) payloads on different types of aerostat platforms including futuristic system like Large size Aerostat. Although, platform integration & evaluation trials was out of scope of the MM project, as stated by IRDE (Aug 2018), ADRDE had planned to use LREO payload on available Nakshatra platform for installation and trials as requested by IRDE (July 2018), and with CABS payloads, flown with the imported laminated fabric balloon. The first phase of these trials was completed in May 2019. The second phase of these trials were planned at Tibri, Punjab in March-April'2020. However, the same could not be done due to

present pandemic situation. The second phase trials would commence as soon as the pandemic situation improves.”

Observation/Recommendation No. 2 of Part B

(Development of an Integrated Aerostat Surveillance System)

The Committee note that the technical specification of project 'Nakshatra' specified the use of laminated fabric for aerostat to sustain a working life of 5 years and for continuous operability for 14 days. However, they are dismayed to note that PU fabric coated balloon was used for trials which was of a lower quality than imported balloon made up laminated fabric. What can be more disconcerting for the Committee than the fact that imported balloon; though of superior quality, was never put to any field trial and was kept as risk mitigation strategy.

[Para No. 2 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

As noted by the PAC, the technical specification of project Nakshatra specified the use of laminated fabric to sustain the working life of 05 years and continuous operability of 14 days. Also, it is agreed that PU coated fabric balloon was used during project as observed by the committee.

However, it is submitted that the indigenous improved PU coated fabric met the project objectives viz., endurance of 14 days comparable with the imported balloon. With respect to working life of 05 years achievable with imported balloon, the same can be met with 02 nos. of improved PU coated fabric balloons.

The performance of improved PU coated fabric balloon was not known a priority. But, during trials, improved PU coated balloon met the endurance requirement of 14 days and performed consistently. Hence, it was decided to continue its usage to explore its performance to full potential and complete the project. Therefore, the imported laminated fabric balloon was not put for field trials and was kept as standby and also for any future application.

However, after procurement, the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days. All the functional tests were carried out and the balloon was made ready for flight.

Later on, requirements emerged from DRDO sister establishments, CABS and IRDE, to test and evaluate set of sensors and Long Range Electro-Optic (LREO)

device, respectively. In order to meet these requirements, the Nakshatra Aerostat system along with imported balloon was deployed as per test requirements.

Hence it is submitted that the imported balloon was subjected to trials and usage within and beyond project PDC of June 2016."

Vetting Comments of Audit

"The ministry stating that imported balloon was subjected to trials within PDC was not correct as field trials using imported laminated fabric balloon was not held within the PDC of the project. The Ministry itself admitted that the fabric was kept as standby for any future application. Thus, the import of laminated fabric balloon did not serve the desired objective defined in the project i.e. to sustain the working life of 05 years and continuous operability of 14 days within the PDC i.e. 30 June 2016. Moreover, later in August 2016, user suggested some Improvement in the product after closure of the project".

This has been vetted vide DGADS UO NO. 438IDP-4912014-151(33)12014-15 dated 09 Jun 2020.

Response of the Ministry to the Audit Vetting Comments

"It submitted again, that after procurement. the laminated fabric balloon was inflated and integrated with simulated payloads and other subsystems for conducting the performance evaluation trials for 11 days on ground. Functional tests were carried out within PDC. It is agreed as stated by the committee that the imported laminated balloon was not utilised for field trials within project PDC. The performance of improved PU coated fabric balloon was not known a priori. But, during trials, improved PU coated balloon met the endurance requirement of 14 days and performed consistently. Hence, it was decided to continue its usage to explore its performance to full potential and complete the project. Therefore, the imported laminated fabric balloon was not put for field trials and was kept as standby and also for any future application. It is also submitted that the indigenous improved PU coated fabric met the project objectives viz., endurance of 14 days comparable with the imported balloon. As far as working life of 05 years achievable with imported balloon is concerned, the same can be met with 02 nos. of improved PU coated fabric balloons. Project objectives of this TD Project were met with indigenously developed improved PU coated balloon. The user endorsed that the User Associated Technical Trials were successful. Thus during the 10th Executive Board meeting dated 27 April 2016 in concurrence with user, it was decided to close the project within PDC of 30 June 2016 after deployment of system at

user site as per scope of the TD project and the project was closed in consultation with the user after successful demonstration at user site.”

Observation/Recommendation No. 3 of Part B

(Development of an Integrated Aerostat Surveillance System)

The Committee do not concur with the assertion of either the Ministry or the DRDO that the Project met its set objectives and hence the use of laminated fabric balloon was not necessitated. The Committee are confounded at the fact that as to why, in the first instance, the balloon was imported if the purpose could have been achieved with indigenous product. It clearly depicts the lack of foresight and planning on the part of DRDO as at no stage of the examination, the Committee could find DRDO coming up with the alternative use of the imported balloon in case the domestic product proves to be successful.

[Para No. 3 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

It is submitted that the indigenous improved PU coated fabric met the project objectives and the user endorsed vide Users MoM 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016 that the tests were successful, suggesting a few changes to get optimal results from the system.

With respect to alternative use of imported balloon, the same was discussed during 10th EB meeting held on April 2016 and it was suggested that the laminated fabric balloon could be utilised for the product support project beyond PDC of Nakshatra project.

However, the QR pertaining to the Product Support Project was under discussion with the user over a protracted period of time extending till Feb. 2019. The reply from the user is still awaited.

In the meantime, the requirements from the sister DRDO lab emerged for alternative usage to test and evaluate sensors during Sept. 2018. In order to meet these requirements, the Nakshatra Aerostat system along with imported balloon was deployed in the field, demonstrating and meeting the requirements for CABS and IRDE.”

Vetting Comments of Audit

"The ministry reply indicated that usage of imported balloon was discussed in EB meeting (April 2016), which was held near the fag end of the closure of the main project i.e. June 2016. It was suggested to use the same for product support beyond PDC of Nakshatra project. Since, the QR pertaining to Product Support Project was yet to be finalized, it indicates that till date, DRDO is yet to

decide on the alternative use of the imported balloon. Moreover, it appears to be an afterthought rather than a genuine need based usage of the imported fabric. "

Response of the Ministry to the Audit Vetting Comments

"It is submitted that the indigenous improved PU coated fabric met the project objectives and the user endorsed vide Users MoM 55340/ABC(Nakshatra) SI-1 1 dated 31 Aug. 2016 that the tests were successful, suggesting a few changes to get optimal results from the system. With respect to alternative use of imported balloon, the same was discussed during 10th EB meeting held on April 2016 and it was suggested that the laminated fabric balloon could be utilised for the product support project beyond PDC of Nakshatra project. However, the QR pertaining to the Product Support Project was under discussion with the user over a protracted period of time extending till Feb. 2019. The reply from the user is still awaited. In the meantime, the requirements emerged for alternative usage of NAKSHATRA to test and evaluate sensors/payloads. The first phase trials of approx 60 days was completed in May' 2019. Another phase was planned in MarchApril'2020 at Tiberi, Punjab which is on hold due to Corona pandemic. "

Observation/Recommendation Para No. 4 of Part B

(Development of an Integrated Aerostat Surveillance System)

Here, the Committee would also like to highlight the fact that the Army also expressed reservations about the effectiveness of the balloon during the User Assisted Technical Trials (UATT). The Committee has every reason to believe that DRDO was more interested in developing/importing a foreign made balloon rather than ensuring that the end-user is fully satisfied with the product delivery. Non-extending the trials further on the ground that expenditure was not available for the same, is evidently an amiss on the part of the DRDO. Instead they came out with alternative suggestions of seeking queries from the Army after giving them for 2 years user trials across the country. The Committee also note with concern that since the completion of project, the Army has still not finalized the qualitative requirements (QR) for the aerostat project. The Committee, in this regard, recommend that an internal inquiry be set by DRDO to find out the reasons for these lapses and the avoidable expenditure which proved to be infructuous.

[Para No. 4 of Part 'B' of the 131st Report of Public Accounts Committee 16th Lok Sabha]

Action Taken by the Government

During 10th EB meeting held during April 2016, including Users (SI Directorate), it was decided to close the Nakshatra project within PDC i.e. 30 June 2016, and a new project under product support category shall be taken up. After project closure, in a meeting held at Army Hqrs in Aug. 2016 between the scientists from ADRDE, Agra, DLRL, Hyderabad and the Users (SI Directorate), DDGSI (WZ) informed the forum that the User Associated Technical Trials (UATT) of

the project Nakshatra held at Tibri Cantt was successful and suggested a few changes pertaining to COMINT payloads and Tether to get optimal results from the system. It is reiterated that the user was satisfied with the UATT vide Para 4 of MoM dated Ref 55340/ABC(Nakshatra)/SI-11 dated 31 Aug. 2016.

Further during this meeting, it was collectively decided to launch a comprehensive Product Support Project for a period of 2 years in alignment with the decision taken during the 10th EB meeting. DRDO communicated to users multiple times to provide the QR for taking up Product Support Category Project. However, as observed by PAC, the Army has still not finalised the QR for the medium size Aerostat. In the meantime, the user has projected a requirement of Tactical (small size) Aerostat, stating that operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017.

The request for carrying out the User Associated Technical Trials (UATT) to be conducted for a period of 03 months was projected during Oct. 2016 after the project closure in June 2016 by the user. This request is in contradiction to decision taken during 10th EB and also during meeting held at Army Hqrs during Aug. 2016. Also, it is pertinent to mention here that without a project in place, it is difficult to carry out expenditure towards the trials, product support, etc. for a long duration of 3 months and beyond. The same was communicated to the Users.

It is agreed as stated by the committee that the imported laminated balloon was not utilised for trials within project PDC. However the project goals were met using indigenously developed improved PU coated fabric. The imported laminated fabric balloon was subsequently deployed and utilised for other DRDO projects as stated earlier.

The laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by our scientists facilitating subsequent indigenous development of laminated fabric balloon. Hence it is requested not to consider the expenditure of Rs.6.2 Cr as infructuous.

Vetting Comments of Audit

"It appears that the decision to close the project within PDC was taken in a hurry since the user i.e. Army as well as DRDO had not declared User Associated Technical Trials successful within PDC/closure of the project in June 2016. The user (SI-11) had clearly stated in August 20'17 to the lab (ADR&DE) that the efficacy of COMINT payload mounted on the aerostat could not be ascertained during the User Associated Technical Trials and a joint trial for two to three months was essential before taking up a case for extended product support for three years. Further, DRDO was silent on PAC direction to conduct an internal inquiry by DRDO to find out the reasons for the lapses and the avoidable expenditure which proved to be Infructuous.

This has been vetted vide DGADS UO NO. 438IOP-4912014-151(33)12014-15 dated 09 Jun 2020. "

Response of the Ministry to the Audit Vetting Comments

"During 10th EB meeting held during April 20'16, including Users (SI Directorate), it was decided to close the Nakshatra project within PDC i.e.30 June 2016, and a new project under product support category shall be taken up. The request by Users in Oct'2016, for carrying out the User Associated Technical Trials (UATT) for a period of 03 months before taking up a case for extended product support was out of scope of the current TD project and is in contradiction to decision taken during 10th EB in which Users was also part of the decision and also during meeting held at Army Hqrs during Aug'2016. It is pertinent to mention here that without a project in place, it is difficult to carry out expenditure towards the trials, product support, etc. for a long duration of 3 months and beyond. The same was communicated to the User. An Internal Enquiry Committee was constituted on 23.01.2019 and committee submitted its report on 13.11.2019. Committee examined all the project documents thoroughly. Internal committee found that the project is completed in line with set procedures and all the decisions are taken collectively involving Users. It is agreed as stated by the PAC committee that the imported laminated balloon was not utilized for trials within project PDC. However, the project goals were met using indigenously developed improved PU coated fabric. The imported laminated fabric balloon was subsequently deployed and utilised for other DRDO projects as stated earlier. Further the committee found that the laminated fabric balloon was utilized and certain critical aspects of laminated fabric balloon technology were learnt by DRDO Scientists facilitating subsequent indigenous development of laminated fabric balloon. Hence, the expenditure of Rs.6.2 Cr may not be treated as infructuous."

Comments of the Committee

Comments of the Committee please see Paragraph No. 17 of Chapter I

Observation/Recommendation Para No. 5 of Part B

(Development of an Integrated Aerostat Surveillance System)

Another glaring issue which has come up not only during the examination of this para but in other subjects relating to DRDO is the delays and cost escalation in their projects. This particular project viz. Nakshatra was initially sanctioned in July 2011 at the cost of 48.80 crore. However, the project cost was consequently revised to Rs. 58.80 crore in October 2013 with the revised probable date of completion (PDC) June, 2016 instead of the original one, i.e., December, 2014. Although the project was completed at a cost of 49.50 crore finally, the Committee are in a dithering state as to why the project cost was hiked to the tune of almost

10 crores and then the same was also not utilized. This is undoubtedly a case of wrong financial projections and goes against the principles of prudent financial management. If seen in the backdrop of extending the field trials for the Army by DRDO on the ground of lack of funding, this issue assumes special significance. The Committee in no uncertain words recommend 46 that the internal inquiry as recommended in the preceding paragraph should also cover these aspects and responsibility be fixed, if required, under intimation to the Committee. They also recommend that all-out efforts be made to obviate instances of such nature which include wasteful expenditure as well as cost and time escalations. At least now, they be apprised of the outcome of the Qualitative Requirements as finalized by the Army

Action Taken by the Government

It is agreed that the original sanctioned cost of the project was Rs.48.8 crores. After two and a half years of project execution, it was realized that development of indigenous laminated fabric balloon needed more time than anticipated. A decision was taken to procure laminated fabric balloon. A budgetary offer of Rs.10 Cr. was obtained from M/s RosAeroSystems, Russia. Accordingly, an additional fund of Rs.10 crores over the original sanctioned cost of Rs.48.8 crores was sought. The project cost was revised to Rs.58.80 Cr. vide Govt. letter no. DARO/03/342/P/1/2710/D(R&D) dated 29/10/2013 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No. 958/MoD/Fin/(R&D) dated 24/10/2013.

Although the funds were available in the project, a considered decision was taken in concurrence with the user in 10th EB to close the project after completion of trials at Tibri within project PDC i.e. 30 June 2016 followed by a new Project of Product Support mode for 02 years.

DRDO communicated to user multiple times to provide the QR for taking up Product Support Category Project. However, the Army has still not finalised the QR for the medium size Aerostat. In the meantime, the user has projected a requirement of Tactical (small size) Aerostat, stating that operational utility of tactical (small sized) Aerostat with COMINT payload shall be much more than medium sized/large sized Aerostat based system as communicated vide letter no. 55340/ABC/(Nakshatra)/SI-11 dated 30 Aug. 2017. QR is still awaited from the user.

Cost overrun in DRDO projects are rare. However, time overruns are there. DRDO projects are completed in sync with help from users, production agencies and private agencies. Users provide platforms and trial support, OFB's & Defence public sectors are involved in production, QA agencies are responsible for timely clearance of certification requirements. Some of the subsystem developments are undertaken with the help of private vendors.

However, it may be noted that R&D is an area of uncertainty where certain unknowns are explored. In addition to taking design projects where the subsystems are already matured, DRDO also has to undertake Technology Development projects and Science & Technology projects where the technology readiness levels may be at intermediate and low levels respectively increasing the risk of delays. Certain high risk and high pay off projects and blue sky research has also been undertaken where there is extremely high chance of delays and also failures.

However in recent past, several measures have been taken to mitigate the cost & time overrun.

Vetting Comments of Audit

"An additional Rs 10 crore over the original sanctioned cost of Rs 48.8 crore for the procurement of laminated fabric balloon was not utilized for project objective. Further, DRDO was silent on PAC direction to conduct an internal inquiry by DRDO to find out the reasons for the lapses & fixing the responsibility for including wrong financial to projection".

Response of the Ministry to the Audit Vetting Comments

"The sanctioned cost of the project was Rs 48.8 crores. After two and a half years of project execution, it was realized that development of indigenous laminated fabric balloon needed more time than anticipated. A decision was taken to procure laminated fabric balloon. Accordingly, an additional fund of Rs.10 crores over the original sanctioned cost of Rs 48.8 crores was sought. The project cost was revised to Rs 58.80 Cr. vide Govt. letter no. DARO/03/3421P11127101D(R&D) dated 291101201 with concurrence of MoD Finance vide MoD (Fin)/(R&D) vide Dy No. 958/MoD/Fin/(R&D) dated 2411012013. However only an amount of Rs 6.2 crores was utilised for the procurement of laminated balloon.

An Internal Enquiry Committee was constituted on 23.01.2019 and committee submitted its report on 13.11.2019. All the project documents have been examined thoroughly by the committee. Committee found that the project is completed in line with set procedures and all the decisions were taken collectively involving Users.

The internal inquiry has been conducted as directed by PAC and its findings as incorporated in the ATN submitted to O/o DGADS are as follows:-

The import of laminated fabric balloon was part of project risk mitigation strategy. The indigenously improved PU coated nylon fabric balloon was able to demonstrate the COVINT payloads successfully till the completion of project. All the functional aspects of the system were demonstrated at Agra and at User Designated site also during Users Associated Technical Trials(UATT). The success of the project was also endorsed by Users Upon successful demonstration and completion of project. The Users suggested to incorporate certain additional payloads and modifications in the system and conduct extended trials for two year. Accordingly, based on the deliberations with Army draft QR was forwarded to Army for approval, in order to take up a new project. As a consequence, the imported laminated balloon remained as standby. After completion of project, requirements emerged from other DRDO labs and the Imported balloon was deployed continuously for 60 days as an airborne platform for testing of important payloads. Moreover, as a spin-off of learning

from the study imported balloon, the development of indigenous laminated fabric technology has been expedited, matured and is available for future requirements. Hence. the expenditure on imported balloon may not be treated as Infructuous.

Comments of the Committee

Comments of the Committee please see paragraph No. 17 of Chapter I

CHAPTER V

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

-NIL-

NEW DELHI;
September, 2020
Bhadrapada, 1942 (Saka)

ADHIR RANJAN CHOWDHURY
Chairperson,
Public Accounts Committee

CONFIDENTIAL

MINUTES OF THE FOURTH SITTING OF THE PUBLIC ACCOUNTS COMMITTEE (2020-21)
HELD ON 28TH AUGUST, 2020.

The Public Accounts Committee sat on Friday, the 28th August, 2020 from 1500 hrs. to 1715 hrs. in Committee Room 'C', Parliament House Annexe, New Delhi.

PRESENT

Shri Adhir Ranjan Chowdhury - Chairperson

Members

LOK SABHA

2. Shri T.R Baalu
3. Shri Subash Chandra Baheria
4. Smt. Darshana Vikram Jardosh
5. Shri Bhartruhari Mahtab
6. Shri Vishnu Dayal Ram
7. Shri Rahul Ramesh Shewale
8. Shri Jayant Sinha
9. Shri Balashowry Vallabhaneni

RAJYA SABHA

10. Shri Naresh Gujral
11. Shri C.M Ramesh
12. Shri Bhupender Yadav

LOK SABHA SECRETARIAT

1. Shri T.G Chandrasekhar - Joint Secretary
2. Shri MLK Raja - Director
3. Shri Paolientlal Haokip - Additional Director

REPRESENTATIVES OF THE OFFICE OF THE COMPTROLLER AND
AUDITOR GENERAL OF INDIA

- | | | |
|----|--------------------|----------|
| 1. | Ms.Shubha Kumar | - Dy.CAG |
| 2. | Shri K. Srinivasan | - DG |
| 3. | Shri Sanjay Kumar | - DG |
| 4. | Ms.Ritika Bhatia | - PD |
| 5. | Shri S.V. Singh | - PD |

REPRESENTATIVES OF THE MINISTRY OF TEXTILES

PART-I

1. At the outset, the Hon'ble Chairperson, welcomed the Officers of the C&AG of India to the sitting of the Committee. Thereafter, he invited suggestions of the Members on the following Draft Reports:-

- | | | | |
|-----|-------|-------|-------|
| (a) | ***** | ***** | ***** |
| (b) | ***** | ***** | ***** |
| (c) | ***** | ***** | ***** |
| (d) | ***** | ***** | ***** |
| (e) | ***** | ***** | ***** |

- (f) Action Taken by the Government on the Observations/Recommendations of the Committee contained in their 131st Report (Sixteenth Lok Sabha) on the subject, "Avoidable Procurement of a Mobile Nitrogen Gas Generator Plant, infructuous procurement of material, development of integrated aerostat surveillance system and irregular expenditure on construction of vehicle testing ground".

2. After deliberations, the Draft Reports were adopted by the Committee without any modifications/changes. The Committee authorized the Chairperson to finalize the Reports in the light of factual verification/vetting comments, if any and present the same to Parliament on behalf of the Committee.

3. The Chairperson, then, thanked the Members and the representatives of the Office of the C&AG of India for assisting the Committee in the examination of the subjects.

PART-II

The Committee then adjourned.

APPENDIX-II
(Vide Paragraph 5 of Introduction)

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT ON THE OBSERVATIONS/RECOMMENDATIONS OF THE PUBLIC ACCOUNTS COMMITTEE CONTAINED IN THEIR ONE HUNDRED AND THIRTY-FIRST REPORT (SIXTEENTH LOK SABHA)

(i)	Total number of Observations/Recommendations	-	14
(ii)	Observations/Recommendations of the Committee which have been accepted by the Government: Para Nos. 1, 2, 3, 5 & 6 of Part 'A'	-	Total : 05 Percentage: 35%
(iii)	Observations/Recommendations which the Committee do not desire to pursue in view of the reply of the Government: Para Nos. 7 of Part 'A' and Para Nos. 6 & 7 of Part 'B'	-	Total : 03 Percentage: 21%
(iv)	Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee and which require reiteration: Para Nos. 4 of Part 'A' and Para No. 1, 2, 3, 4 & 5 of Part 'B'	-	Total : 06 Percentage: 42%
(v)	Observations/Recommendations in respect of which the Government have furnished interim replies/no replies: Para Nos.	-	Total : 00 Percentage: 00%